STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: February 21, 2020

FROM: Andrew O'Sullivan
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT: Dredge & Fill Application
Loudon-Canterbury, 29613A
Response to RFMI
(DES#2019-03745)

TO: Kristin Duclos, Wetlands Specialist

THRU: Karl Benedict, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the NHDOT's response to the RFMI dated and received on Friday January 24, 2020.

The following responses will be in corresponding order with the enumerated items identified in the RFMI. Revised wetland impact plans dated 2/2020 as well as other attachments are included with this response package and are reference within each enumerated response.

1. This RFMI item has brought to light that final coordination regarding the NH F&G Conservation Easement parcel at station 5598+00 through 5607+00 was not finalized prior to permit application submission. Coordination with NH Fish and Game as well as NH Motor Speedway has continued. NHDOT has not come to a resolution with Fish and Game and NH Motor Speedway regarding the proposed work and if the activities are permissible. NHDOT does not have a clear direction specific to how the coordination will conclude therefore NHDOT has removed the proposed work and impacts between station 5598+00 through 5607+00 from this wetland permit application submission. It is NHDOT's intent to add the work back to this project once coordination and direction are finalized; if and when that is the decision, a wetlands permit application amendment will be filed with NHDES.

2. It has been NHDOT's business practice to use the Construction General Permit's (CGP) line style of Natural Buffer perimeter Control (NB/PC) to identify the outer most limit of work where perimeter control will be placed to protect the site from erosion and sedimentation. NB/PC symbolizes the use of two layers of erosion control measures within 50 feet of a jurisdictional

wetland. On sheet 15 through sheet 28 NHDOT provided a symbology legend that lists all of the types of erosion control that can be used in an NB/PC system. NHDOT has fulfilled and satisfied the requirements and details asked upon the Department to indicate erosion control and sedimentation plans. Further discussion regarding this RFMI item are needed between NHDOT and NHDES and have been initiative with Karl Benedict however a final understanding has not been memorialized as of date.

3. Proposed contours were erroneously shown outside of the actual proposed slope lines. The proposed contours have been corrected on the updated plans dated 2/2020. There are no additional impacts to Wetland "D" (Station 5422+00 Rt) or Wetland "Z" (Station 5608+50 Rt). Please note that Wetland "Z" is part of the segment that has been removed from this application.

4. The existing culvert will be extended to accommodate 6' of road widening on the eastern side which moves the location of the intermittent stream channel away from the road as well. The outlet treatment has been corrected to include a stone lined channel connecting the new outlet back to the existing intermittent stream thereby perpetuating the existing conditions. The watercourse will not be eliminated or allowed to disperse outside of the stone lined channel.

5. The referenced "intermittent water course" line style is actually a water survey line collected by survey personnel. These lines do not represent officially delineated wetlands and have been removed from the plans. The wetlands were delineated by a Certified Wetland Scientist (CWS) where the formal and final jurisdictional delineated wetland and stream boundaries were collected. The revised plans include the delineated wetland line styles and represent the jurisdictional wetlands as determined using methodologies referenced in NHDES Wetland Rule.

The unidentified impact area for Wetland "Z" (Station 5608+75 through 5610+00) has been addressed under item 3 and removed from the plans.

6. As discussed in response to item 5 above, the area along the west side of Route 106 between Stations 5537+30 and Station 5540+00 was showing water survey lines and not an "intermittent water course". These lines have been removed from the plans. While our survey personnel may have labeled the ditch as wet, the Certified Wetland Scientist (CWS) for the project did not identify the area as a jurisdictional wetland.

7. As addressed previously, the lines referred to as streams are wet areas observed by our survey personnel and have been removed from the plans. The wetland impacts proposed at Stations 5398+00 and 5555+21 have not been identified by the CWS as streams.

8. The proposed riprap at Station 5398+50 is on the west side of Route 106 is at the outlet of the pipe which flows from east to west. The riprap outlet protection is standard practice for scour and erosion control at the outlet.

9. The revised wetland impact summary table provided on sheet 4 of the 2/2020 revised wetland impact plans includes linear feet measurements for permanent and temporary impacts for stream channel and banks.

10. The Parcels indicated will either have land bought, easements bought, or condemned upon prior to advertising the project. The Bureau of Right-of-Way (BoROW) will provide a ROW Certificate confirming this

Per the Certification:

The New Hampshire Department of Transportation, Bureau of Right-of-Way hereby certifies that the right to occupy and use all the rights necessary for this project has been acquired by deed, condemnation, right-of-Entry. All right-of-way has been acquired and all relocations have been accomplished, in accordance with FHWA regulation (49 CFR24), 23 CFR 710…

Without exceptions, with exceptions listed, and/or list any acquisitions not completed with a reserve date associated with said parcel

NHDOT Bureau of ROW is currently condemning on one parcels. This effort is ongoing. It is anticipated that this actions will be finalized prior to advertising.

The two stormwater ponds are being bought in fee and will become the property of the State of NH (no permanent easements for the BMPs).

NHDOT will provide easements or written agreements once they are finalized prior to beginning of construction. NHDOT anticipates a permit conditions similar to past permits which reference a condition such as: "This permit is not valid until the applicant/owner obtains construction easements on abutting parcels or written permission from abutting property owners if work is beyond the ROW. The permittee shall submit a copy of each recorded easement to the NHDES Wetlands Bureau prior to construction."

11. The BMP sheets have been included as attachments.

12. The original NHB review was conducted in 2017 (NHB17-1748), prior to applying for the current wetlands permit. An updated NHB report was requested on August 29, 2019 (NHB19-2789). The Small Whorled pogonia was not identified in the original review. However, a review of the project area utilizing he Information, Planning, and Consultation (IPaC) web tool in 2017 did identify the Small Whorled pogonia. As a result, a formal survey was completed for small whorled pogonia in the location where it had been identified in the 2012 corridor study. The species was not found at that location or in any other location reviewed during other field work. Habitat within clearing limits along the project was assessed and USFWS concurred that no further surveys were warranted. Correspondence with USFWS is attached.

13. The original NHB report dated 6/7/2017 also included the American eel (Anguilla rostrata), bridle shiner (Notropis bifrenatus), and wood turtle (Glyptemys insculpta). Coordination regarding these species had occurred with Carol Henderson from the NH Fish & Game Department at the December 20, 2017 NHDOT Monthly Natural Resource Agency Coordination Meeting. At that time NH Fish & Game concurred that impacts to these species are not anticipated since existing conditions at stream crossings will be improved upon. NHDOT sent an email to Kim Tuttle and Carol Henderson on 1/28/2020 to confirm the determination. Email correspondence included in the attachments.

14. Wetland impact area "K" involves replacing and upsizing the existing drive pipe. The concrete end section will have some minor disturbance to the wetland. There is some overlap of the concrete end section and the delineated wetland. Area "K" has been recalculated for a temporary impact at "K" and a permanent impact area at "K2".

Wetland impact area "R" is within the clearing limits for the slope work associated with the roadway widening. This impact area is now designated as a permanent impact.

15. NHDOT provided erosion control plans that had been vetted and reviewed extensively with the Bureau of Environment wetlands program and water quality program. The Erosion Control plans submitted meet the standards that NHDOT expects NHDES will approve.

16. This is usually a permit condition. Construction details for proposed erosion sedimentation, and turbidity control measures will be designed by the Contractor. Another usual permit

condition is to specify doing this work during periods of low flow. NHDOT anticipates permit conditions such as: "This permit is contingent on review and approval, by the DES Wetlands Program, of final stream diversion/erosion control plans. Those plans shall detail the timing and method of stream flow diversion during construction, temporary siltation/erosion/turbidity control measures to be implemented." "Stream work shall be done during low flow or dry conditions."

17. The TCP sequencing description now includes establishing erosion, sedimentation and turbidity controls prior to clearing and grubbing. The TCP sequencing gives a project's general timeline meeting milestones as needed (July race dates, end of the 2020 construction season, end of project). The Contractor develops the Stormwater Pollution Prevention Plan (SWPPP) as part of their work. The SWPPP identifies the potential sources of stormwater pollution and describes the specific practices the Contractor will be taking to prevent the discharge of pollutants from the construction site. This documentation will not be available until after awarding the project to the winning bid Contractor.

18. Tax map and lot information has been added to the wetland impact plans. Please reference the plans for tax map and lot details.

19. A tax map and lot number for each parcel has been included in the revised plans.

20. The plans include all property lines and property owners. It should be noted that a single parcel may cross the town line and have two map and lot numbers; one for each town (See parcel 60 on the west side of Route 106 at Station 5541+00±). Conversely, on the east side of Route 106 the speedway owns two parcels which abut the town line.

21. The right-of-way line was incorrectly displayed in the legend. This has been corrected in the revised plans.

22. Erosion Control Plans now show a combination of perimeter control and channel protection for the revised impact areas "K" and "K2", as well as impact area "R".

23. Color photos are provided below for the following wetlands: GGG (at impact locations F & G), CCC (at impact locations N and O), F (at impact location P), and TT (at impact location U & V).

Wetland Area GGG, (Sta. 5400+00 ± - Sta. 5403+00 ±, LT.)

Top Left Image: South (Sta. 5403+00 ± LT.) Impact Area 'G', foreground, Impact area 'F', background, other side of Miles Smith Farm sign.

Top Right Image: North (Sta. 5403+00 ± LT.) Impact Area 'F', foreground, Impact area 'G', background, other side of Miles Smith Farm sign.

Bottom Left Image: South (Sta. 5400+00 ± LT.) Impact Area 'F'.

Bottom Right Image: North (Sta. 5400+00 ± LT.) South limit of Impact Area 'F'.

Wetland Area CCC (Drain Pipe Inlet) (Sta. 5422+34, LT. 43.9') South limit of Impact Area 'N'

Wetland Area CCC, (Sta. 5422+33 – Sta. 5424+45, LT.) Impact Areas 'N' and 'O'. Impact Area 'N' adjacent to Road, impact Area 'O' in the background of Middle right and bottom left pictures.

Wetland TT impact areas are in #25 below.

Wetland Area F, (Sta. 5433)

24. See #17

25. The picture showing the drive at approximately Sta. 5526+75 Lt between wetlands UU and TT is correct.

The following picture group showing wetland UU from Sta. 5524+25 +/- Lt to Sta. 5526+75 +/- Lt are correct.

The next picture group that has no description should be for wetland TT, Sta. 5527+00 +/- Lt to Sta. 5530+75 +/- Lt, and should include the next picture group (labelled as wetland area UU, Sta. 5524+25 +/- - Sta. 5526+75 +/-) as part of wetland TT (between the drive at Sta. 5526+75 Lt, which separates Wetlands TT and UU, and Asby Road).

Some of the pictures in the Wetland Area Z groups are south of the wetland. Other stationing for the remaining Wetland Area Z stationing updated.

Wetland Area TT, West (Sta. 5524+25 ± - Sta. 5526+75 ±, LT.)

Wetland Area TT, West (Sta. 5524+25 ± - Sta. 5526+75 ±, LT.)

Wetland Area Z, (South End) (Sta. 5593+00 ±, RT.)

Wetland Area Z (Sign Structure) (Sta. 5598+50 ±, RT.)

Wetland Area Z, (Sta. 5601+00 ±, RT to Sta. 5601+50 Rt)

Wetland Area Z, (Drop Inlet and Drain Pipe Outlet) (Sta. 5603+40, RT. 22')

Wetland Area Z, (Sta. 5607+50 ±, RT. – Sta. 5608+75 +/- RT)

26. The construction sequencing has been revised as a separate document. Please note the following responses to questions 26a and 26b:

a. The "Segments (XX-XX)" was in reference to the length of reclaim work allowed at one time. This has been removed and replaced with "work to be done in segments up to 3,000' at a time".

b. Phase 3 has been deleted as it was relative to the northern work from Station 5598+00 to Station 5607+00 which has been removed from the contract. It originally was noting the removal of portable concrete barrier prior to the July 2021 race.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

AMO:sel
Enclosures

BOE Original
Town of Loudon Clerk/ Conservation Commission
Town of Canterbury Clerk/ Conservation Commission
Lori Sommer, NH Department of Environmental Services (via electronic notification)
Carol Henderson, NH Fish & Game (via electronic notification)
Kim Tuttle, NH Fish & Game (via electronic notification)
Amy Lamb, NH Natural Heritage Bureau (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)
Matt Lampron, NHDOT Highway Design (via electronic notification)
Trent Zanes, NHDOT Highway Design (via electronic notification)

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

WETLANDS PERMIT APPLICATION
REQUEST FOR MORE INFORMATION

January 24, 2020

NH DEPT OF TRANSPORTATION
C/O SARAH LARGE
PO BOX 483
CONCORD NH 03302

Re: Wetlands Permit Application (RSA 482-A); NHDES Wetlands File Number: 2019-03745
Subject Property: NH Route 106, Loudon, Tax Map #ROW, Lot #ROW

Dear Ms. Large:

The New Hampshire Department of Environmental Services Land Resources Management Program (NHDES) Wetlands Bureau has reviewed your Wetlands Permit Application for the above referenced property, and has determined that additional information is needed to clarify and complete the application. This information is required in accordance with RSA 482-A, specifically RSA 482-A:3, XIV(a)(2), and Administrative Rules Env-Wt 100 through 900.

In order for NHDES to render a decision on your application, **all** of the items requested below must be addressed in full. In order to facilitate a timely decision, your response must be formatted to coincide with the information as requested below; i.e., each numbered item below must be likewise numbered in your response. NHDES will make a **final determination** based upon the information provided in your response to this request.

1. Plan sheet 13 of 28 indicates that work within wetlands beyond the existing right-of-way will occur on NH Fish and Game Department (NHF&G) conservation easement land near stations 5598+00 through 5607+00. The deed for this easement restricts such activity. Please explain what coordination has occurred with NHF&G and the Charitable Trust Division or the Attorney General to amend the easement. Coordination on this issue should also include the Mitigation Coordinator, Lori Sommer at lori.sommer@des.nh.gov or at (603) 271-4059.
2. The legend items "Perimeter Control" and "Natural Buffer/Perimeter Control" appear redundant, as they include the same six controls. NHDES recognizes the need for the contractor to have some flexibility on-site, but the categories in the legend are so broad so as to be problematic. Sediment, turbidity and dewatering controls are combined into a single category, "Perimeter Control", and should be broken into several categories. For example, silt fence installed within streams or surface waters is completely inappropriate, but the legend doesn't differentiate. Finally, it is not clear what "Natural Buffer" means in the context of an erosion control plan, but regardless, the use of a natural buffer as sediment control within/adjacent to wetlands or surface waters is not an appropriate sediment control measure and should be removed.
3. Plan sheets 7 of 28 and 13 of 28 appear to show proposed grading within a portion of the wetlands along the eastern side of NH Route 106 identified as Wetland "D" (Station 5422+00) and Wetland "Z" (Station 5608+50) that were not identified as permanent impact areas. If the proposed grading at these stations were included in error, please revise the plans to remove the proposed grades at these locations. However, if this proposed grading is intentional, then please revise the wetland impact areas on the plans, wetland impact tables, application fee, mitigation proposal, erosion and sedimentation control plans, and all other applicable application materials to include all additional permanent wetland impact areas related to the proposed grading and all additional temporary wetland impact areas for all necessary erosion and sedimentation controls.

4. The proposed wetland impacts within Wetland "D" at Station 5422+00 involve fill within an intermittent stream (R4SB3J) and indicate that the existing watercourse will be eliminated and the existing stream flow will be redirected from the culvert outlet onto an 18-foot-long by 6-foot-wide riprap outlet apron where flow will disperse along the adjacent slope. This design as proposed would not be considered the least impacting alternative as required pursuant to Rule Env-Wt 302.04(a)(2). Additionally, the General Design Consideration of Stream Crossings [Env-Wt 904.01(e) and (g)] requires that all stream crossings shall be designed and constructed so as to preserve watercourse connectivity where it currently exists, and not cause erosion, aggradation, or scouring upstream or downstream of the crossing. Please revise the plans at this location to preserve the existing watercourse and ensure that all potential erosion and sedimentation issues are addressed. Additionally, note that the inclusion of riprap outlet aprons within streams are not typically considered the least impacting alternative. If flow calculations indicate that outlet protection is necessary to prevent erosion and sedimentation after proper culvert sizing, consider less impacting alternatives such as using stream simulation materials over embedded riprap scour protection.
5. The legend key symbol for "intermittent water course" can be identified on the plans within the following identified wetlands:

Wetland ID	Impact Location ID
C	C
HHH	A, B
FFF	K
SS	W, X, Y
LL	AL, AK
T	AM, AN
Z	AO, AP, AQ, AR, AS, AT, Unidentified impact at Station 5608+75 through 5610+00

   Please determine whether these wetland impact areas contain impacts to intermittent streams and include photographs of all wetland impact locations. If intermittent streams are present, then revise the plans, impact tables, and all other applicable application materials to include the additional permanent and temporary linear stream impacts.
6. The legend symbol for an "intermittent water course" can be identified on the plans along the West side of NH Route 106 between Station 5537+30 to Station 5540+00. The photographs of this location included in the application appear to support that this may be a jurisdictional area. Please determine if this location contains jurisdictional resources and identify whether there are any permanent or temporary impacts to wetlands expected as a result of the proposed work. If this area is determined to contain resources jurisdictional under RSA 482-A, then please make any necessary revisions to the plans, wetland impact tables, mitigation proposal, erosion and sedimentation control plans, and all other applicable application materials to include all additional permanent and temporary wetland impact areas at this location.
7. Supplementary materials and photographs included in the application identify the wetland impacts proposed at Stations 5398+00 and 5555+21 as occurring within streams, however, these wetlands were not identified as streams on the plans or in the impact calculations tables. Please address this discrepancy and make any necessary revisions to the plans, wetland impact tables, mitigation proposal, erosion and sedimentation control plans, and all other applicable application materials to include all temporary and permanent stream impacts.
8. Station 5398+50 appears to show a proposed riprap inlet apron at the inlet of the existing culvert. Please either revise the plans to remove this structure or provide the calculations that justify the inclusion of such flow protection at the inlet. If calculations indicate that riprap inlet protection is necessary to provide stability, then please revise the plans to include this structure as a permanent impact area and provide construction specifications that include the use of stream simulation materials over the surface of embedded riprap protection as a less impacting alternative.
9. Please revise the impact tables on plan sheet 4 of 28 to include the linear footage of all temporary impacts within perennial and intermittent streams for this project.

10. Based on the plans provided, wetlands impacts take place beyond the existing right-of-way (ROW) at the following parcels:

Plan Sheet (of 28)	Parcel ID Number	Name	Wetland Impact Location ID	Station
5	12	Loudon-Penguin Real Estate Holdings, LLC	A, B	5398+50
5	14	Swensco Property Management, LLC	C	5398+50
5	15	L.P. Gas Equipment, Inc.	C	5398+50
5	16	Kenney, Stuart A.	A, B	5398+00 to 5399+00
5	17	Austin, Lorraine F.	A, B, D, E, F	5398+75 to 5403+25
5	18	Fillmore Industries, Inc.	C	5398+50
5, 6	20, 22, 23	Emily Golf Links, LLC	H, I, J, K	5403+50 to 5412+75
7	29	Smith, Pauline	L, M, P	5422+00 and 5433+00
9	58	Sunny Side Maples, Inc.	R	5513+75
12	61	106 Parking, LLC	AI, AJ	5554+50 to 5555+25
13	62	New Hampshire Motor Speedway, Inc. (Mitigation Parcel with NHF&G Conservation Easement)	AO, AP, AQ, AR, AT, AS	5600+50 to 5606
*13	*63	*McWhinnie, Gayle A. & Topham, Jonathan M.	Unidentified Impact Area *(See Item #3)	*5608+75 to 5610

Please obtain signed easements or authorization letters from the affected landowners, pursuant to NH Administrative Rule Env-Wt 304.04(a). Additionally, please note that a permit cannot be issued, pursuant to RSA 482-A:11, II., and NH Administrative Rule Env-Wt 502.02(b) without an easement or other signed authorization for work to take place on the property of these landowners. Additionally, please note that landowner authorization in the form of permanent easements will also be required for the construction of the two stormwater management ponds proposed on the following properties:

Plan Sheet (of 28)	Parcel ID Number	Name	BMP Pond ID
16	3	Swensco Property Management, LLC	5381
16	5	Fillmore Industries, Inc.	5381
21	46	PLH, LLC	5488

11. To ensure that the two proposed stormwater management ponds meet the requirements in Env-Wq 1500, please include the BMP sheets for both proposed stormwater ponds that show that they will provide adequate treatment.
12. According to the NH Natural Heritage Bureau (NHB) report dated August 29, 2019, small whorled pogonia (*Isotria meleoloides*) as well as an unidentified sensitive plant species are present in the vicinity of the project. Please contact Amy Lamb of the NHB at amy.lamb@dncr.nh.gov or (603) 271-2834 to address any concerns the NHB may have regarding these species and provide a copy of all correspondence as part of your response to this letter in accordance with Rule Env-Wt 302.04(a)(7).
13. According to the NHB report dated August 29, 2019, rare species, including American eel (*Anguilla rostrata*), bridle shiner (*Notropis bifrenatus*), and wood turtle (*Glyptemys insculpta*), are located in the vicinity of the project. Please contact Kim Tuttle of the NH Fish and Game Department (NHF&G) at kim.tuttle@wildlife.nh.gov or (603) 271-6544 to address any concerns NHF&G may have regarding these species and provide a copy of all correspondence as part of your response to this letter in accordance with Rule Env-Wt 302.04(a)(7).

14. Please describe the work that is proposed within the temporary wetland impact areas identified at impact locations "K" and "R."
15. Please include construction details for all proposed erosion, sedimentation, and turbidity control measures.
16. Pursuant to NH Administrative Rule Env-Wt 303.04(l), temporary cofferdams and other water control devices constructed in flowing water or adjacent to dams in conjunction with the repair or maintenance of existing structures shall be designed and supervised by a professional engineer (PE) and shall be removed upon completion of repair and/or maintenance. If cofferdams proposed for dewatering will be constructed in flowing water (for example within the perennial stream at Station 5542+00), please include a detailed cofferdam/dewatering plan that has been stamped by a licensed PE as a part of the response to this letter or any permit issued for this project will be contingent upon the approval of such a plan. Please note that these plans must detail the timing and method of stream flow diversion during construction; all proposed cofferdams, diversion and dewatering strategies with applicable construction details; estimated maximum flow to be diverted; site stabilization provisions if capacity of diversion is exceeded; and show all temporary siltation/erosion/turbidity control measures to be implemented.
17. Please revise the plans to include a construction sequence for the project that fully describes the sequence of work, including pre-construction through post-construction activities; erosion, sedimentation, and turbidity controls; and the relative timing and progression of all work in accordance with Rule Env-Wt 501.02(a)(5). Note that the installation of resource appropriate erosion, sedimentation, and turbidity controls should precede all activities that involve ground disturbance, including grubbing.
18. Pursuant to Rule Env-Wt 501.02(a)(1), please provide a copy or tracing of a town tax maps showing the property of the applicant, the location of the proposed project on the property, and the location of properties of abutters with each lot labeled with the abutter's name(s) and mailing address(es).
19. Pursuant to Rule Env-Wt 501.02(a)(2)b., please revise the plans to include the tax maps and lot numbers for each abutting parcel identified on the plans.
20. Pursuant to Rule Env-Wt 501.02(a)(2)e., please revise the plans to include locations of the property lines of all abutting properties. While most of the property lines were included on the plans, there are a few that appear to be missing, particularly for the properties in Canterbury.
21. Pursuant to Rule Env-Wt 501.02(a)(2)i., please revise the legend key such that all symbols, line types, and shading used on the plan are identified and match. For example, the legend key identifies the "right-of-way" line as a hatched line consisting of two short dashes followed by a long dash but the plans identify the "existing right-of-way line" with a single short dash followed by a long dash.
22. Pursuant to Rule Env-Wt 501.02(a)(2)q., please revise the Erosion Control Plans to include the appropriate erosion and sedimentation controls around wetland impact areas "K" and "R."
23. Pursuant to Rule Env-Wt 501.02(a)(3), please include color photographs of the impact areas within the following wetlands: GGG (at impact locations F and G), CCC (at impact locations N and O), F (at impact location P), and TT (at impact location U and V). Photographs of these wetland impact areas were not included in the original application.
24. Pursuant to Rule Env-Wt 501.02(a)(5), please revise the plans to include a construction sequence for the project that fully describes the sequence of construction, including pre-construction through post-construction activities; erosion, sedimentation, and turbidity controls; and the relative timing and progression of all work.
25. The photographs for wetland areas "Z," "UU," and "TT" appear to be mislabeled, either with the incorrect station markers or they appear to depict a different wetland entirely. Please review all photographs and ensure that they are properly labeled with the location in which they were taken.
26. Please make the following changes to the Traffic Control Sequencing Sheets:
    a. Under the Phase 1-B notes on Sheet 1 of 2 and the Phase 2B notes on Sheet 2 of 2, please identify what the "Segments (XX-XX)" stands for at the end of the statement beginning "- Reclaim full width of roadway,"
    b. Under the Phase 3 notes on Sheet 2 of 2, please clarify the statement beginning "- Remove PCB and other traffic control prior to July 202X race."

Please include file number 2019-03745 on all the required items requested above, and on all other correspondence submitted to this office relative to this application. The requested information must be submitted to NHDES within 60 days of this letter. **Please be aware that in accordance with RSA 482-A:3, XIV(a)(2), failure to provide a single and**

complete response to the items listed above within 60 days of the date of this request will result in a denial of your application. Therefore, if NHDES does not receive a complete response by MARCH 24, 2020, your application for a permit will be denied. A copy of all the requested items must be submitted to the town of Loudon Municipal Clerk and Conservation Commission and the town of Canterbury Municipal Clerk and Conservation Commission.

If you have any questions, please contact me directly at Kristin.Duclos@des.nh.gov or (603) 271-4197.

Sincerely,

Kristin L. Duclos
Wetlands Specialist
NHDES Wetlands Bureau

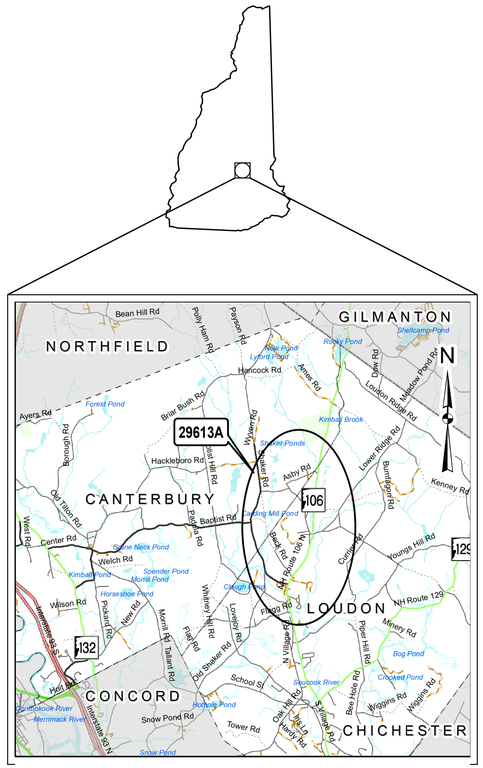
cc: Loudon Municipal Clerk, Conservation Commission, Board of Selectmen
Canterbury Municipal Clerk, Conservation Commission, Board of Selectmen
Andrew O'Sullivan, NH Department of Transportation

ec: Keith Cota, NH Department of Transportation
Karl Benedict, NH Department of Environmental Services, Public Works Supervisor
Lori Sommer, NH Department of Environmental Services
Carol Henderson, NH Fish & Game
Kim Tuttle, NH Fish & Game
Amy Lamb, NH Natural Heritage Bureau

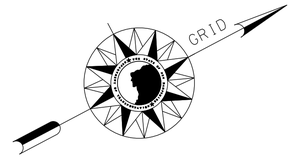
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

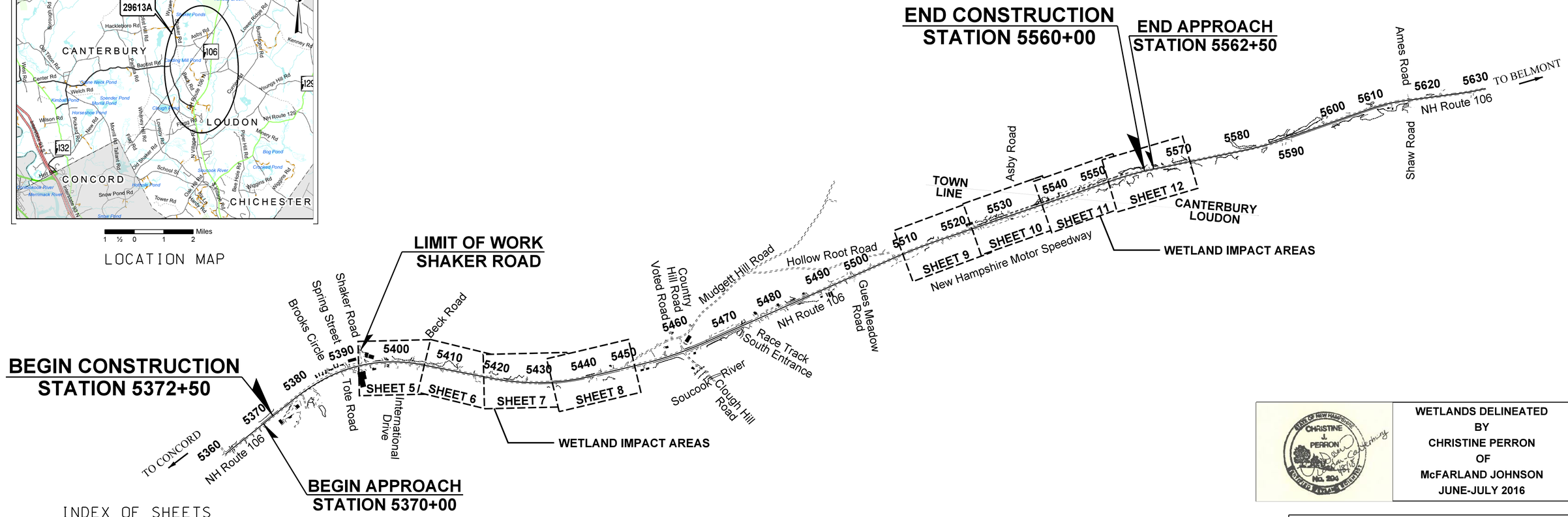
WETLANDS PLANS
FEDERAL AID PROJECT

X-A004(458)
N.H. PROJECT NO. 29613A
NH ROUTE 106



LOCATION MAP





INDEX OF SHEETS

DRAWN BY	MTH	DATE	2/20
CHECKED BY	TWC	DATE	2/20

WETLANDS DELINEATED BY CHRISTINE PERRON OF McFARLAND JOHNSON JUNE-JULY 2016

TOWN OF LOUDON-CANTERBURY

COUNTY OF MERRIMACK

SCALE: 1" = 1,000'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

DRAWING NAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
29613Afsw	X-A004(458)	29613A	1	25

DRAINAGE

MANHOLE
CATCH BASIN — cb
DROP INLET — di
(existing) (PROPOSED)

DRAINAGE PIPE (existing) (label size & type)
DRAINAGE PIPE (PROPOSED)
UNDERDRAIN (existing) W/ FLUSHING BASIN — fb (label size & type)
UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN
show direction of flow
HEADER (existing & PROPOSED) (with stone outlet protection)
END SECTION (existing & PROPOSED) METAL or PLASTIC, RCP
OPEN DITCH (PROPOSED)
EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE (label type)
RR RIGHT-OF-WAY LINE
PROPERTY LINE
PROPERTY LINE (COMMON OWNER)
TOWN LINE — BOW / CONCORD
COUNTY LINE — COOS / GRAFTON
STATE LINE — MAINE / NEW HAMPSHIRE
NATIONAL FOREST
CONSERVATION LAND — LC
BENCH MARK / SURVEY DISK
BOUND — bnd (PROPOSED)
STATE LINE/ TOWN LINE MONUMENT — S/L, T/L
NHDOT PROJECT MARKER
IRON PIPE OR PIN — ip
DRILL HOLE IN ROCK — dh
TAX MAP AND LOT NUMBER — 156 / 14, 1642/341, 6.80 Ac.±
PROPERTY PARCEL NUMBER — 12
HISTORIC PROPERTY — H

UTILITIES

	existing	PROPOSED
TELEPHONE POLE		
POWER POLE		
JOINT OCCUPANCY		
MISCELLANEOUS/UNKNOWN POLE		
GUY POLE OR PUSH BRACE		
LIGHT POLE		
LIGHT ON POWER POLE		
LIGHT ON JOINT POLE		

(plot point at face not center of symbol)

POLE STATUS:
REMOVE, LEAVE, PROPOSED, OR TEMPORARY
AS APPLICABLE e.g.:

R L — P+04 25.0' — T+04 25.0'

RAILROAD — (label ownership)
RAILROAD SIGN
RAILROAD SIGNAL
UTILITY JUNCTION BOX — jb — JB
OVERHEAD WIRE — OW — (label type)

UNDERGROUND UTILITIES

WATER (on existing lines label size, type and note if abandoned)	W	PW
SEWER	S	PS
TELEPHONE	T	PT
ELECTRIC	E	PE
GAS	G	PG
LIGHTING	L	PL
INTELLIGENT TRANSPORTATION SYSTEM	ITS	PITS
FIBER OPTIC	FO	PFO
WATER SHUT OFF	WSO	WSO
GAS SHUT OFF	GSO	GSO
HYDRANT	HYD	HYD

MANHOLES

SEWER	S	MHS
TELEPHONE	T	MHT
ELECTRICAL	E	MHE
GAS	G	MHG
UNKNOWN	U	

TRAFFIC SIGNALS / ITS

	existing	PROPOSED
MAST ARM (existing)		30' MA (NOTE ANGLE FROM ℄)
OPTICOM RECEIVER		
OPTICOM STROBE		
TRAFFIC SIGNAL		
PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT		
SIGNAL CONDUIT	C C C	PC PC PC
CONTROLLER CABINET	cc	CC
METER PEDESTAL	mp	MP
PULL BOX	pb	PB
LOOP DETECTOR (QUADRUPOLE)		(label size)
LOOP DETECTOR (RECTANGULAR)		(label size)
CAMERA POLE (CCTV)		
FIBER OPTIC DELINEATOR	fod	FOD
FIBER OPTIC SPLICE VAULT		SVF
ITS EQUIPMENT CABINET	its	ITS
VARIABLE SPEED LIMIT SIGN		
DYNAMIC MESSAGE SIGN		
ROAD AND WEATHER INFO SYSTEM		

CONSTRUCTION NOTES

CURB MARK NUMBER - BITUMINOUS	B-1
CURB MARK NUMBER - GRANITE	G-1
CLEARING AND GRUBBING AREA	A
DRAINAGE NOTE	1
EROSION CONTROL NOTE	A
FENCING NOTE	A
GUARDRAIL NOTE	1
ITS NOTE	1
LIGHTING NOTE	A
TRAFFIC SIGNAL NOTE	1

STATE OF NEW HAMPSHIRE
LOUDON-CANTERBURY
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	stdsymb1_2	29613A	2	25

stdsymb1_2.dgn Default 2/21/2020 7:28:12 AM "n34mth"

GENERAL

EDGE OF PAVEMENT — PROPOSED ROADWAY
TRAVELED WAY — existing roadway — (pavement removed outside slope lines)

DRIVEWAYS — (label surface type)

BUILDINGS — (building to be removed)
(label house or type of building)

FOUNDATION — (label type)

LEACH FIELD — leach field

BRIDGE CROSSINGS — STREAM — OVERPASS

STEPS AND WALK — (label type)

INTERMITTENT WATER COURSE

SHORE LINE — river/stream — pond — (label name of water body)

POTENTIAL WET AREA SYMBOL

BRUSH OR WOODS LINE

TREES (PLANS) — (deciduous) (coniferous) (stump)

TREE OR STUMP (CROSS-SECTIONS) — (show station, circumference in feet & type)

HEDGE — (label type)

MONITORING WELL — mon W

WELL — W

FLAG POLE — fp

ORIGINAL GROUND (TYPICALS)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

GUARDRAIL (label type) — existing — PROPOSED — bgr — cgr

JERSEY BARRIER

CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE) — (points toward retained ground)

FENCE (LABEL TYPE)

SIGNS — (single post) — (double post)

GAS PUMP — gp

FUEL TANK (ABOVE GROUND) — ft (label size & type)

STORAGE TANK FILLER CAP — fc

SEPTIC TANK — S

GRAVE — gr

MAILBOX — mb

VENT PIPE — vp

SATELLITE DISH ANTENNA — da

PHONE — ph

GROUND LIGHT/LAMP POST — gl — lp

BORING LOCATION — B

TEST PIT — TP

INTERSTATE NUMBERED HIGHWAY — 293

UNITED STATES NUMBERED HIGHWAY — 3

STATE NUMBERED HIGHWAY — 102

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE — 2 PUB2E

DELINEATED WETLAND — DW
ORDINARY HIGH WATER — OHW
TOP OF BANK — TOB
TOP OF BANK & ORDINARY HIGH WATER — TOBOHW
NORMAL HIGH WATER — NHW
WIDTH AT BANK FULL — WBF
PRIME WETLAND — PWET
PRIME WETLAND 100' BUFFER — PWET100
NON-JURISDICTIONAL DRAINAGE AREA — NJDA
COWARDIN DISTINCTION LINE — CDL
TIDAL BUFFER ZONE — TBZ
DEVELOPED TIDAL BUFFER ZONE — DTBZ
HIGHEST OBSERVABLE TIDE LINE — HOTL
MEAN HIGH WATER — MHW
MEAN LOW WATER — MLW
VERNAL POOL — VP
SPECIAL AQUATIC SITE — SAS
REFERENCE LINE — REF
WATER FRONT BUFFER — WB50
NATURAL WOODLAND BUFFER — NWB150
PROTECTED SHORELAND — PS250
INVASIVE SPECIES LABEL — I.S. I — I.S. II
INVASIVE SPECIES — INV

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY — FP500
100 YEAR FLOODPLAIN BOUNDARY — FP100
FLOODWAY — FW

ENGINEERING

CONSTRUCTION BASELINE — 30 — 31 — 32

PC. PT. POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)

CLEARING LINE — SLOPE LINE

SLOPE LINE

SLOPE LINE (FILL)

SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:
ORIGINAL GROUND ELEVATION (LEFT) — 72.5
FINISHED GRADE ELEVATION (RIGHT) — 79.14

SHEET 1 OF 2

STATE OF NEW HAMPSHIRE
LOUDON-CANTERBURY
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	stdsymb1_2	29613A	3	25

LOUDON WETLAND IMPACTS SUMMARY

WETLAND IMPACT SUMMARY												
WETLAND NUMBER	PLAN SHEET NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA			LINEAR STREAM IMPACTS					
				PERMANENT IMPACTS		TEMPORARY IMPACTS	PERMANENT			TEMPORARY		
				N.H.W.B. (NON-WETLAND)	N.H.W.B. & A.C.O.E. (WETLAND)		BANK LEFT	BANK RIGHT	CHANNEL	BANK LEFT	BANK RIGHT	CHANNEL
				SF	SF	SF	LF	LF	LF	LF	LF	LF
HHH	5	PFO/SS1E	A			281						
HHH	5	PFO/SS1E	B		824							
C	5	PFO/SS1E	C			580						
GGG	5	PFO/SS1E	D			2310						
GGG	5	PFO/SS1E	E		35							
GGG	5	PFO/SS1E	F		2395							
GGG	5	PFO/SS1E	G		79							
FFF	5,6	PFO/SS1E	H			2984						
FFF	5	PFO/SS1E	I		1679							
FFF	5,6	PFO/SS1E	J		2369							
FFF	6	PFO/SS1E	K			27						
FFF	6	PFO/SE1E	K2		4							
D	7	R4SB3J	L			44						5
D	7	R4SB3J	M		266				41			
CCC	7	PFO1E	N		2028							
CCC	7	PFO1E	O			239						
F	7	PEM1E	P			345						
1	8	PEM1Ex	Q		813							
VV	9	R4SB3J	R		127				20			
UU	9,10	PEM1Ex	S		1586							
UU	10	PFO1E	T			148						
TT	10	PFO1E	U		2935							
TT	10	PFO1E	V			163						
SS	10	PFO1E	W		1589							
SS	10	PFO1E	X			264						
SS	11	PFO1E	Y		281							
Q	11	R2UB1H	Z			117						8
			TOTAL =	0	17010	7502	0	0	61	0	0	13

CANTERBURY WETLAND IMPACTS SUMMARY

WETLAND IMPACT SUMMARY												
WETLAND NUMBER	PLAN SHEET NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA			LINEAR STREAM IMPACTS					
				PERMANENT IMPACTS		TEMPORARY IMPACTS	PERMANENT			TEMPORARY		
				N.H.W.B. (NON-WETLAND)	N.H.W.B. & A.C.O.E. (WETLAND)		BANK LEFT	BANK RIGHT	CHANNEL	BANK LEFT	BANK RIGHT	CHANNEL
				SF	SF	SF	LF	LF	LF	LF	LF	LF
PP	11	R2UB1H	AA			121				16		12
QQ	11	PEM1E	AB			57						
OO	11	PFO1E	AC		150							
OO	11	PFO1E	AD			47						
MM	11	PFO1E	AE		13							
MM	11	PFO1E	AF			74						
NN	11	PFO/SS1E	AG		3837							
NN	11	PFO/SS1E	AH			474						
S	12	PSS1E	AI			49						
S	12	PSS1E	AJ		326							
LL	12	PFO/SS1E	AK		98							
LL	12	PFO/SS1E	AL			63						
T	12	PSS1E	AM			445						
T	12	PSS1E	AN		99							
			TOTAL =	0	4523	1330	0	0	0	16	0	12

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

- # — WETLAND DESIGNATION NUMBER
- # — WETLAND IMPACT LOCATION
- # — WETLAND MITIGATION AREA
- MITIGATION

WETLAND CLASSIFICATION CODES	
PFO/SS1E	PALUSTRINE, FORESTED/SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
PFO1E	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
PEM1Ex	PALUSTRINE, EMERGENT, PERSISTANT, SEASONALLY FLOODED/SATURATED, EXCAVATED
R4SB3J	RIVERINE, INTERMITTENT, STREAMBED, COBBLE GRAVEL, INTERMITTENTLY FLOODED
R2UB1H	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL, PERMANENTLY FLOODED
PSS1E	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
PEM1E	PALUSTRINE, EMERGENT, PERSISTANT, SEASONALLY FLOODED/SATURATED

TOTAL PROJECT IMPACTS:

LOUDON PERMANENT IMPACTS: 17,010 SF
LOUDON TEMPORARY IMPACTS: 7,502 SF
CANTERBURY PERMANENT IMPACTS: 4,523 SF
CANTERBURY TEMPORARY IMPACTS: 1,330 SF

TOTAL IMPACTS: 30,365 SF

REVISIONS AFTER PROPOSAL

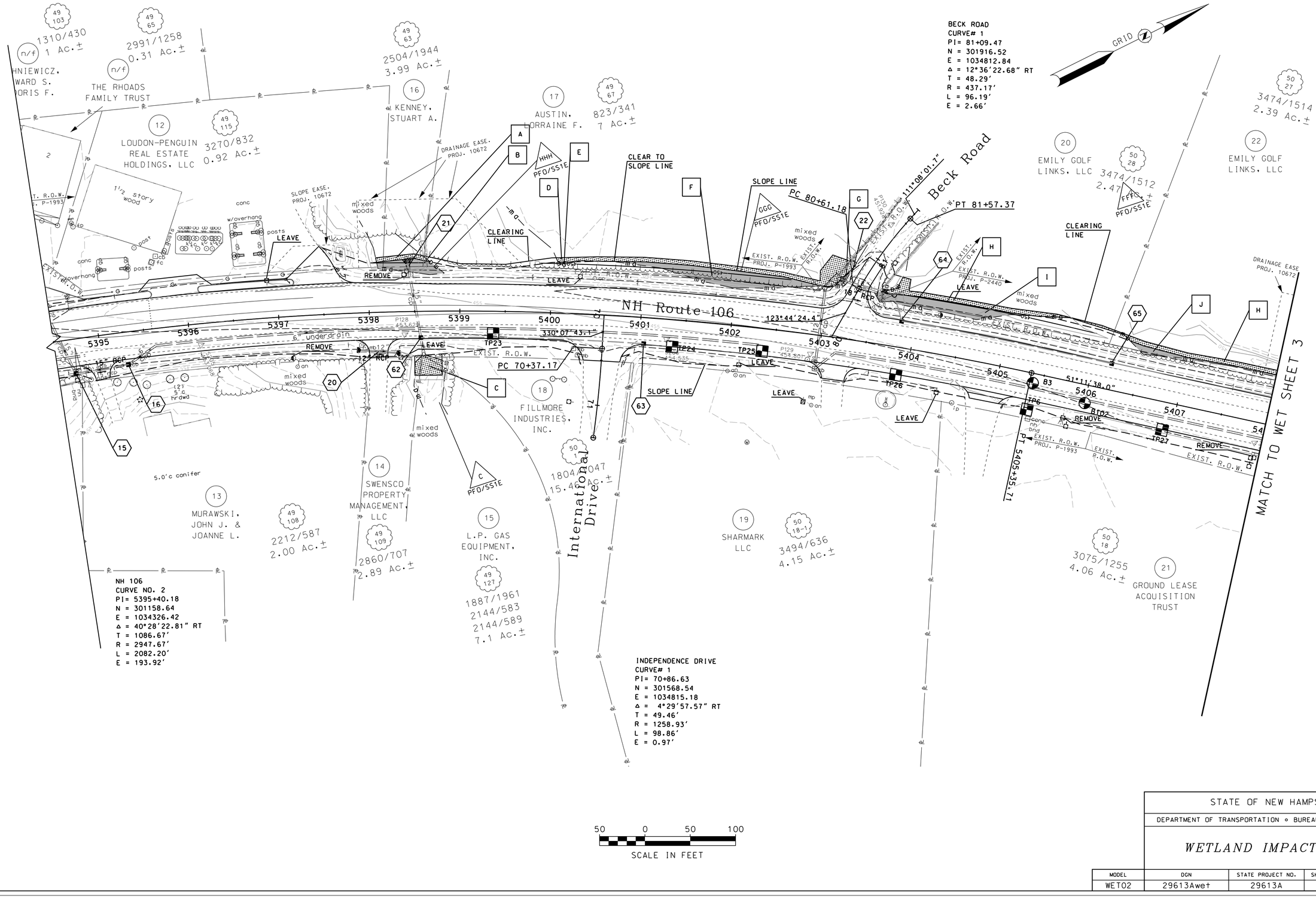
NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED NAME1 DATE1
NEW DESIGN NAME2 DATE2
SHEET CHECKED NAME3 DATE3
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE
LOUDON-CANTERBURY
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET01	29613Awet	29613A	4	25



REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

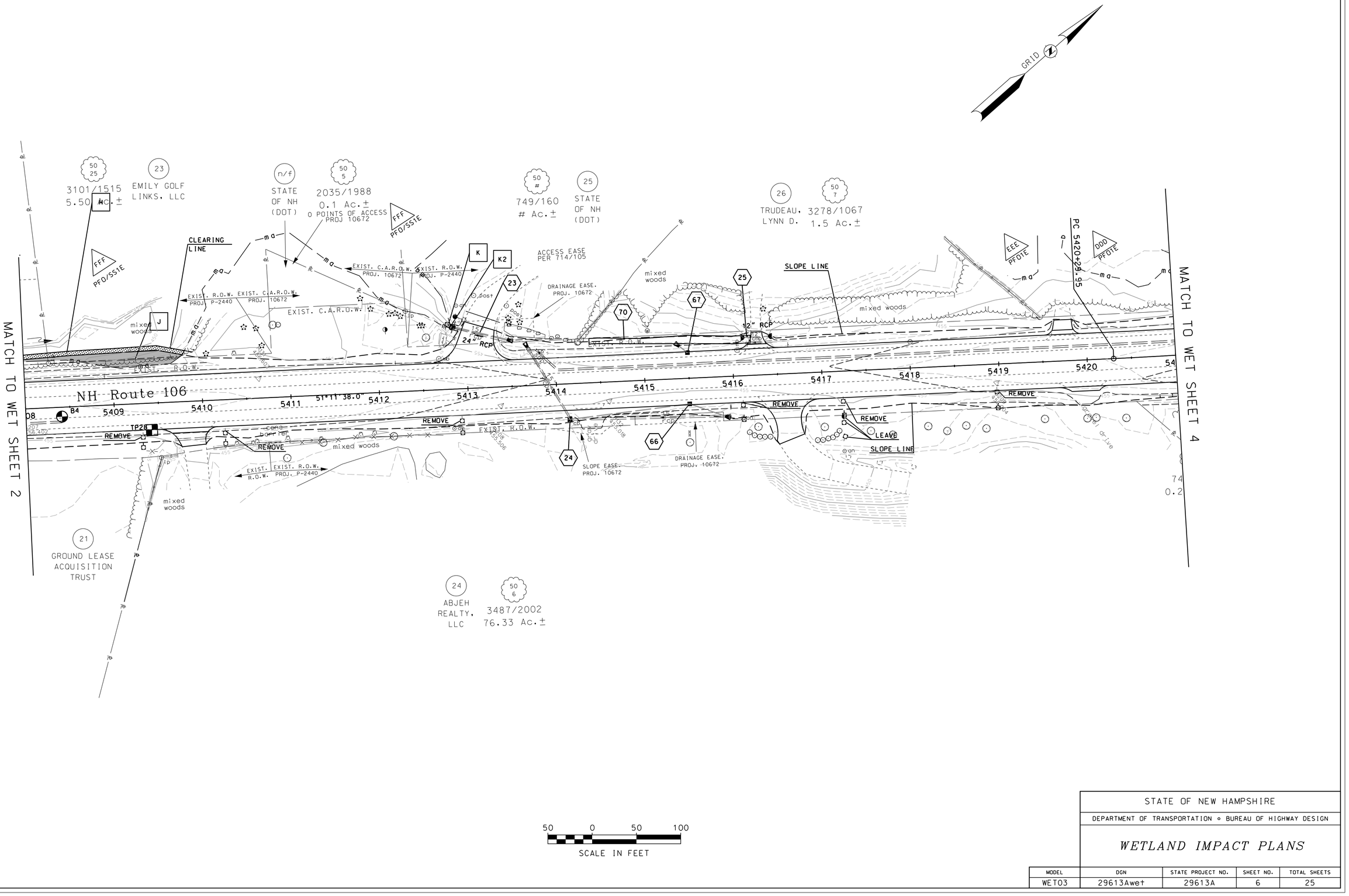
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET02	29613Awet	29613A	5	25



REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION	STATION

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET03	29613Awet	29613A	6	25

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION	STATION

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

GRID

MATCH TO WET SHEET 3

50 4
2189/1278
135.63 Ac.±

27
LEDGES GOLF LINKS INC

NH 106
CURVE NO. 3
PI= 5430+21.77
N = 303942.76
E = 1036565.40
Δ = 24°18'30.67" LT
T = 991.82'
R = 4605.15'
L = 1953.80'
E = 105.59'

DRAINAGE EASE. PROJ. 10672

mixed woods

EXIST. R.O.W.

RARE PLANT

EXIST. R.O.W. PROJ. P-2440

EXIST. C.A.R.O.W. PROJ. 106+72

NH Route 106

5422 5423 5424 5425 5426 5427 5428 5429 5430 5431 5432 5433 5434

REMOVE

SLOPE LINE PROJ. P-2440

SLOPE LINE

EXIST. R.O.W.

B103 B104 B105 B106

TP8 TP9

12" RCP

EXIST. C.A.R.O.W.

END SLOPE LIMITS AT ROW

SAVE

2 POINTS OF ACCESS BETWEEN 510+50 AND 516+00 PROJECT 10672

30
ERVING R. LANE REVOCABLE TRUST
ALMA W. LANE REVOCABLE TRUST

50 8
2189/798
16 Ac.±

28
STATE OF NH (DOT)

50 17
9/306
6 Ac.±

SLOPE EASE. PROJ. 10672

SLOPE LINE PROJ. P-2440

CLEARING LINE

mixed woods

Clear TO ROW ONLY

29
SMITH, PAULINE

50 9
2036/1163
17.48 Ac.±

MATCH TO WET SHEET 5

L D R45B3J

M

26 27 28 29 30

E PEM1E

F PEM1E

P

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET04	29613Awet	29613A	7	25

29613Awet.dgn WET04 2/21/2020 7:28:22 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION	STATION

SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE

NH 106
CURVE NO. 3
PI= 5430+21.77
N = 303942.76
E = 1036565.40
Δ = 24°18'30.67" LT
T = 991.82'
R = 4605.15'
L = 1953.80'
E = 105.59'

END FULL WIDTH RECLAIM
29613A

BEGIN WEARING COURSE OVERLAY
29613

SEE PAVEMENT MATCH TRANSITION DETAIL

GRID

30
ERVING R. LANE
REVOCABLE TRUST
ALMA W. LANE
REVOCABLE TRUST

50 10
2040/1179
0.9 Ac.±
0 POINTS OF ACCESS
PROJ 10672

n/f
STATE OF NH (DOT)

50 22
3439/1157
21.56 Ac.±
1 POINT OF ACCESS
PROJ 10672

n/f
TUBELLEJA, JOANA J.

1
PEM1Ex

50 11
2106/1479
1 Ac.±

n/f
HOFFMAN, JAMES A. & DIANE C.

n/f
THE KAREN P. MOSSMAN REVOCABLE TRUST

50 12
3213/263
8.93 Ac.±

PT 5439+83.75

MATCH TO WET SHEET 4

CONT. ON WET SHEET 6

NH Route 106

SLOPE LINE

SLOPE EASE. PROJ. 10672

EXIST. C.A.R.O.W.

EXIST. R.O.W.

mixed woods

posts

TP10 TP11 TP12

B5 B6 B107

U5 U6 31 0

CONST ℄

REMOVE

LEAVE

SAVE

CLEARING LINE

DRAINAGE EASE. PROJ. 10672

SLOPE LINE PROJ. P-2440

2
PF01E
STATE OF NH (F&G)
CONSERVATION
EASEMENT
2683/305

50 19
2073/362
40.27 Ac.±

31
NEW HAMPSHIRE MOTOR SPEEDWAY, INC.

29
SMITH, PAULINE

75°30'08.7"

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

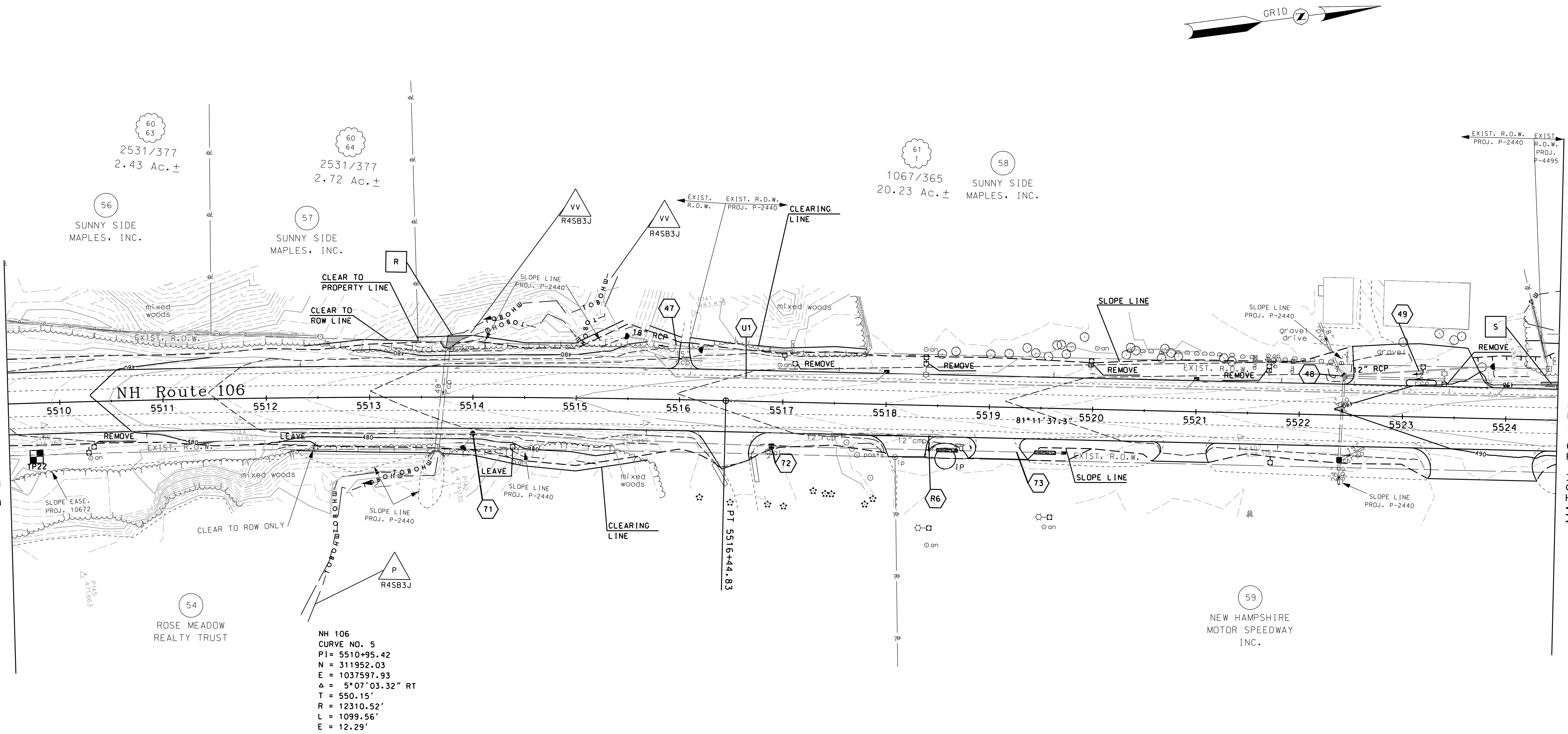
WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET05	29613Awet	29613A	8	25

29613Awet.dgn WET05 2/21/2020 7:28:22 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION



GRID
MATCH TO WET SHEET 5
MATCH TO WET SHEET 7
NH Route 106
5510
5511
5512
5513
5514
5515
5516
5517
5518
5519
5520
5521
5522
5523
5524
81°11'37.3"
PT 5516+44.83
60
63
2531/377
2.43 Ac.±
60
64
2531/377
2.72 Ac.±
56
SUNNY SIDE
MAPLES, INC.
57
SUNNY SIDE
MAPLES, INC.
61
1
1067/365
20.23 Ac.±
58
SUNNY SIDE
MAPLES, INC.
54
ROSE MEADOW
REALTY TRUST
59
NEW HAMPSHIRE
MOTOR SPEEDWAY
INC.
VV
R4SB3J
VV
R4SB3J
P
R4SB3J
R
S
47
U1
48
49
71
72
73
R6
CLEAR TO
PROPERTY LINE
CLEAR TO
ROW LINE
CLEAR TO ROW ONLY
CLEARING
LINE
SLOPE LINE
SLOPE LINE
PROJ. P-2440
SLOPE EASE.
PROJ. 10672
EXIST.
R.O.W.
EXIST. R.O.W.
PROJ. P-2440
EXIST.
R.O.W.
PROJ.
P-4495
EXIST. R.O.W.
REMOVE
LEAVE
mixed
woods
mixed woods
gravel
drive
gravel
18" RCP
12" RCP
12" rcp
12" cmp
48" cp
TP22
posts
IP
NH 106
CURVE NO. 5
PI= 5510+95.42
N = 311952.03
E = 1037597.93
Δ = 5°07'03.32" RT
T = 550.15'
R = 12310.52'
L = 1099.56'
E = 12.29'

50 0 50 100

SCALE IN FEET

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET06	29613Awet	29613A	9	25

SDR PROCESSED NAME1 DATE DATE1

NEW DESIGN NAME2 DATE DATE2

SHEET CHECKED NAME3 DATE DATE3

AS BUILT DETAILS DATE

29613Awet.dgn WET06 2/21/2020 7:28:23 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	DATE	STATION

SDR PROCESSED NAME1 DATE DATE1
NEW DESIGN NAME2 DATE DATE2
SHEET CHECKED NAME3 DATE DATE3

AS BUILT DETAILS DATE

GRID

n/f
GREENPEACE NOMINEE TRUST

61 2
2212/670
13.55 Ac.±

227 9
2212/670
4.9 Ac.±

61 3
2147/1276

59
NEW HAMPSHIRE MOTOR SPEEDWAY INC.

61 5
1879/252
1763/720

MATCH TO WET SHEET 6

MATCH TO WET SHEET 8

NH Route 106

New Hampshire Motor Speedway

Old Asby Road

ASBY ROAD
CURVE# 1
PI= 600+45.30
N = 313946.46
E = 1037861.07
Δ = 20°13'07.48" RT
T = 20.50'
R = 115.00'
L = 40.58'
E = 1.81'

150°58'29.8"
171°11'37.3"
81°11'37.3"

PC 600+65.37
PC 600+24.79

UU PEM1Ex
UU PFO1E
S
T
50A
U
V
UPLAND
TT PEM1Ex
TT PFO1E
W
X
U3
SS PFO1E
50

LEAVE
SLOPE LINE
CLEARING LINE
REMOVE
mixed woods
EXIST. R.O.W.
EXIST. R.O.W. PROJ. P-4495
EXIST. R.O.W. PROJ. P-2440
TOWN LINE

5525 5526 5527 5528 5529 5530 5531 5532 5533 5534 5535 5536 5537 5538 5539

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

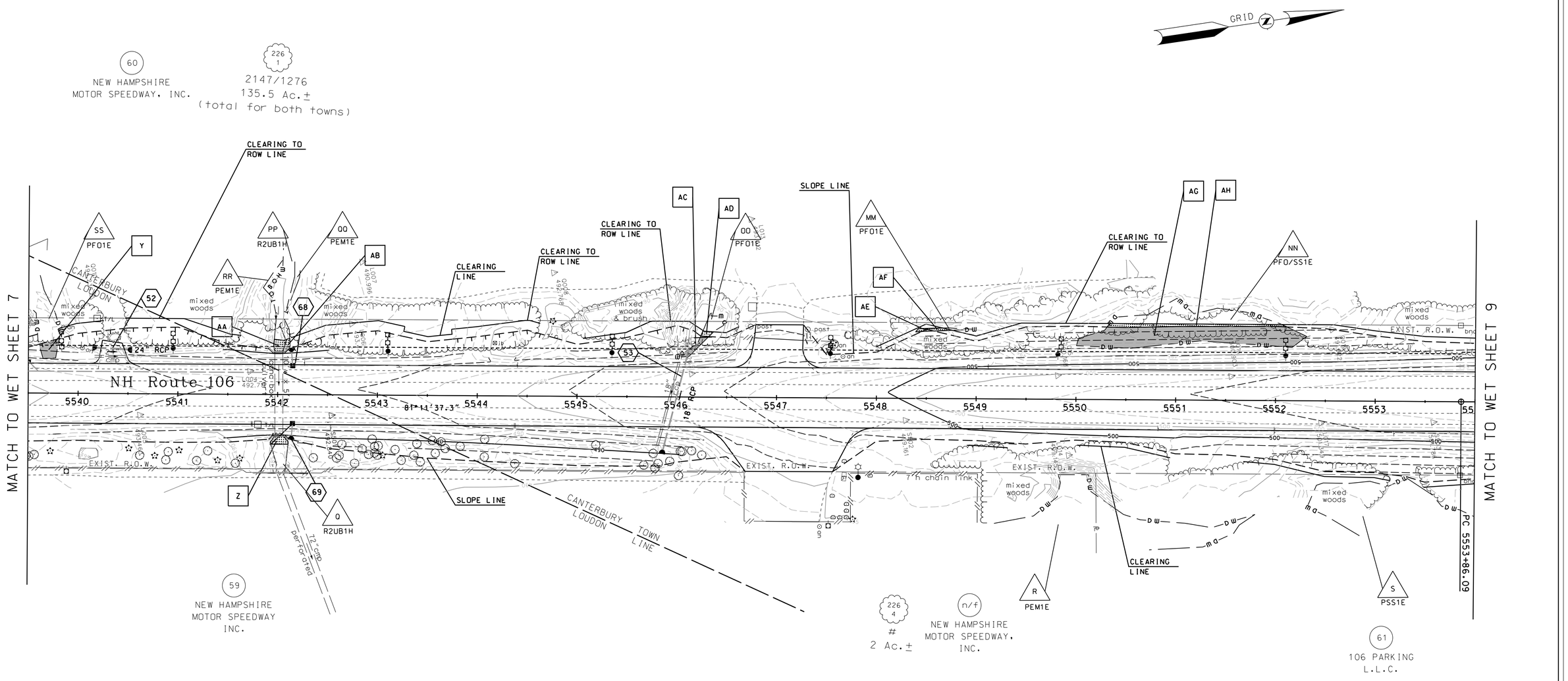
WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET07	29613Awet	29613A	10	25

29613Awet.dgn WET07 2/21/2020 7:28:24 AM "n34mth"

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	DESCRIPTION	STATION

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	



NH 106
CURVE NO. 6
PI= 5557+50.33
N = 316552.79
E = 1038310.68
Δ = 7°16'30.00" RT
T = 364.24'
R = 5729.58'
L = 727.50'
E = 11.57'

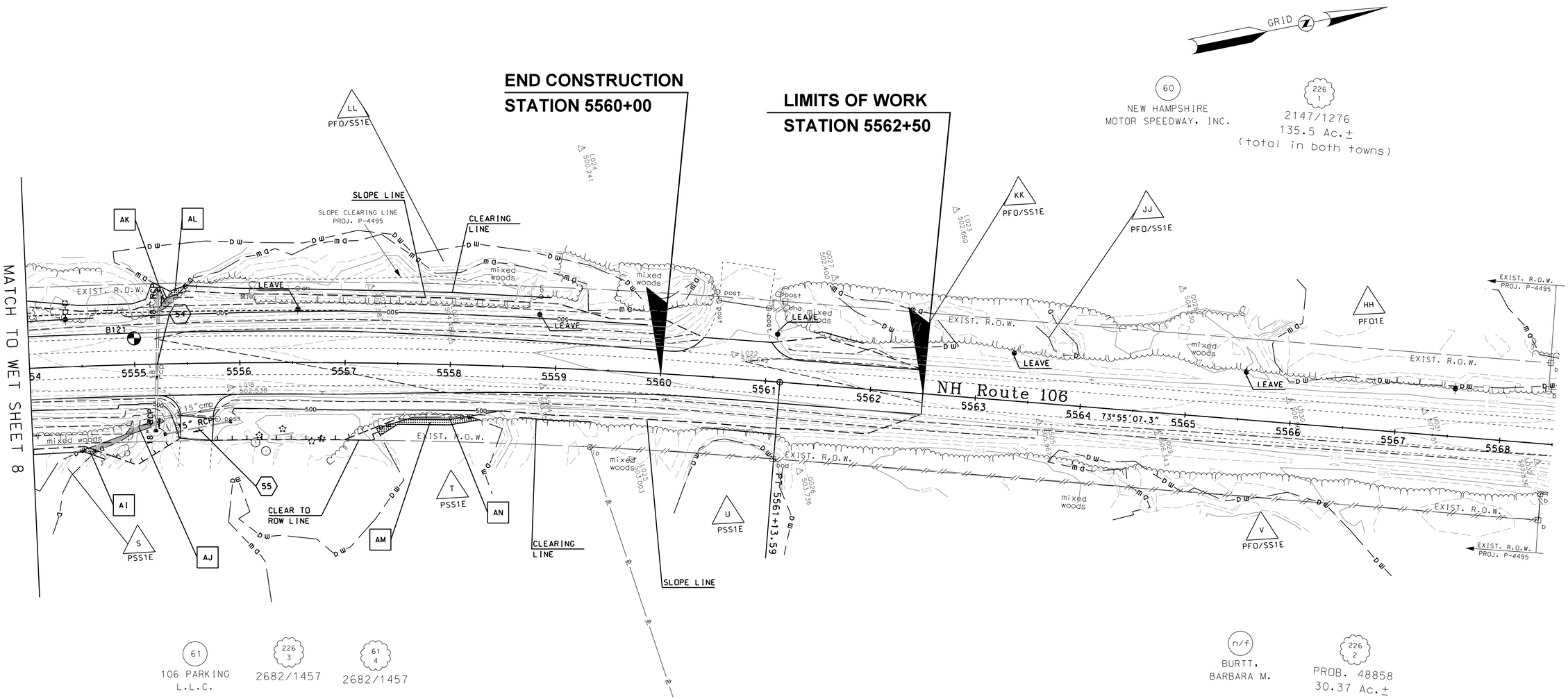
50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET08	29613Awet	29613A	11	25

29613Awet.dgn WET08 2/21/2020 7:28:25 AM "n34mth"



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E = 11.57'

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SCALE IN FEET

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET09	29613Awet	29613A	12	25

29613Awet.dgn WET09 2/21/2020 7:28:25 AM "n34mth"

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
   1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
   1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
   1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
   1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
   1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
   1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.

2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
   2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
   2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
   2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
   2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
      (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
      (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
      (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
   2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
   2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
   2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
   2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30" AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
      (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
      (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
      (C) AFTER NOVEMBER 30" INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
      (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WQ 1505.02 AND ENV-WQ 1505.05.
      (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
   3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
   3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
   3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
   3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
   3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.

4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
   4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
   4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
   4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30", OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.

5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
   5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
   5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
   5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
   5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
   5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.

6. PROTECT SLOPES:
   6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
   6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
   6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
   6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.

7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
   7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
   7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.

8. PROTECT STORM DRAIN INLETS:
   8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
   8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
   8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
   8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.

9. SOIL STABILIZATION:
   9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
   9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
   9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR. IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
   9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.

10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
   10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
   10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
   10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
   11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
   11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
   11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
   11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
   11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
   11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
   11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
   11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
   11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
   12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500: ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
   12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
   12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
   12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
   12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
   12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
   12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.

13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
   13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
   13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
   13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
   13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.

14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
   14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
   14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
   14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1

GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES[2]				ROLLED EROSION CONTROL BLANKETS[3]			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES[1]												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES'	YES'	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

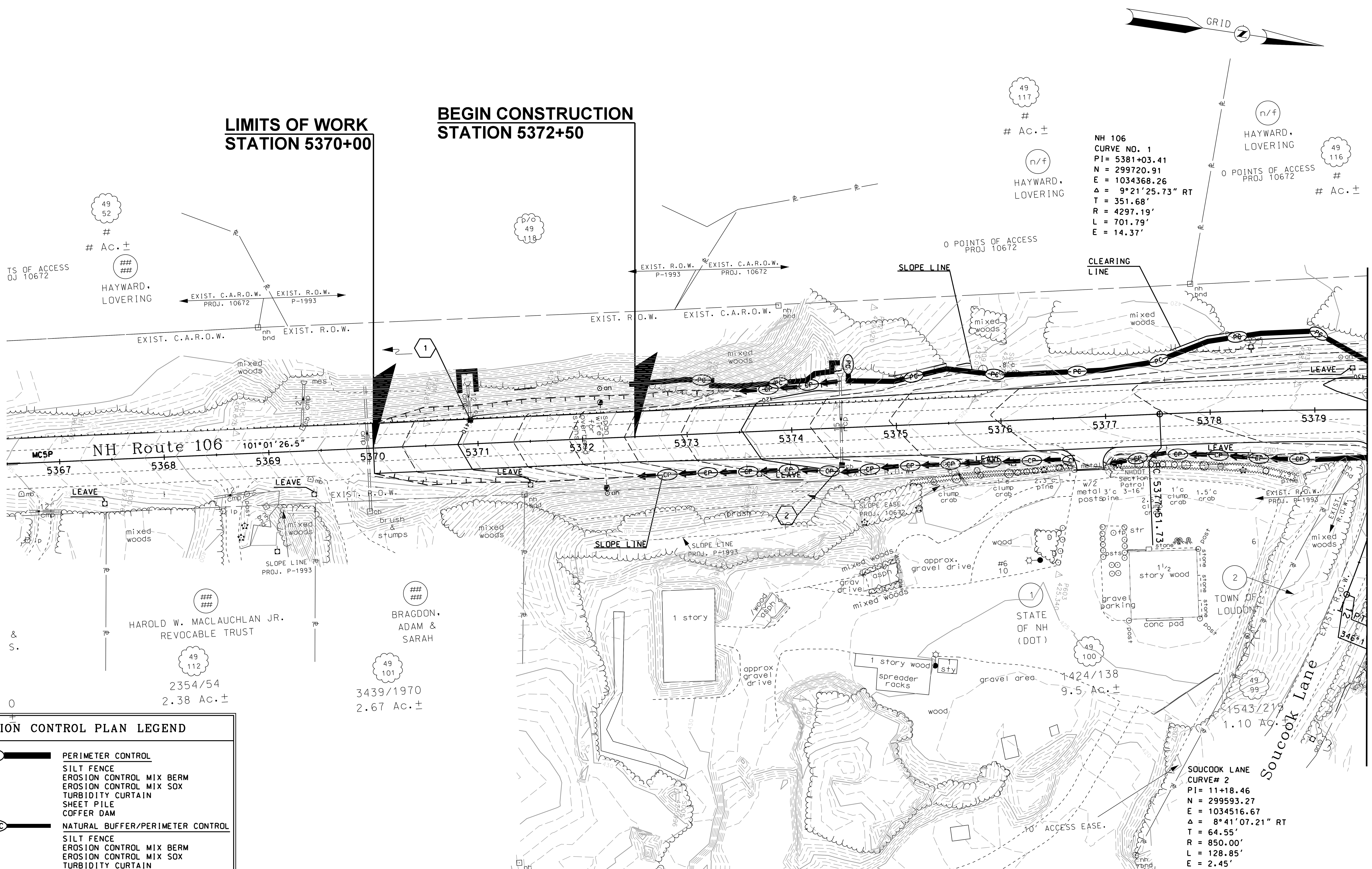
NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

STATE OF NEW HAMPSHIRE
LOUDON-CANTERBURY
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL STRATEGIES

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	29613Aerc	29613A	13	25

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION



LIMITS OF WORK
STATION 5370+00
BEGIN CONSTRUCTION
STATION 5372+50
GRID
NH 106
CURVE NO. 1
PI= 5381+03.41
N = 299720.91
E = 1034368.26
Δ = 9°21'25.73" RT
T = 351.68'
R = 4297.19'
L = 701.79'
E = 14.37'
HAYWARD, LOVERING
0 POINTS OF ACCESS PROJ 10672
EXIST. C.A.R.O.W. PROJ. 10672
EXIST. R.O.W. P-1993
SLOPE LINE
CLEARING LINE
NH Route 106
101°01'26.5"
MC5P
5367
5368
5369
5370
5371
5372
5373
5374
5375
5376
5377
5378
5379
LEAVE
mixed woods
brush & stumps
SLOPE LINE PROJ. P-1993
SLOPE EASE. PROJ. 10672
HAROLD W. MACLAUCHLAN JR. REVOCABLE TRUST
2354/54
2.38 Ac.±
BRAGDON, ADAM & SARAH
3439/1970
2.67 Ac.±
1 story
approx gravel drive
1 story wood
spreader racks
STATE OF NH (DOT)
1424/138
9.5 Ac.±
1½ story wood
gravel parking
conc pad
TOWN OF LOUDON
1543/215
1.10 Ac.±
Soucook Lane
SOUCOOK LANE
CURVE# 2
PI= 11+18.46
N = 299593.27
E = 1034516.67
Δ = 8°41'07.21" RT
T = 64.55'
R = 850.00'
L = 128.85'
E = 2.45'
10' ACCESS EASE.
MATCH TO ERC SHEET 2

50 0 50 100
SCALE IN FEET

EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP — CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CWB — CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS

SHEET 1

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC01	29613Aerc	29613A	14	25

EROSION CONTROL PLAN LEGEND

PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

REVISIONS AFTER PROPOSAL

STATION	DESCRIPTION	STATION	DATE	NUMBER

	NAME1	DATE	DATE1
SDR PROCESSED			
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

BROOK CIRCLE
CURVE# 1
PI= 21+12.47
N = 300279.32
E = 1034246.71
Δ = 2°16'18.70" LT
T = 50.49'
R = 2546.32'
L = 100.97'
E = 0.50'

SPRING STREET
CURVE# 1
PI= 40+96.83
N = 300654.72
E = 1034300.72
Δ = 2°46'29.08" LT
T = 47.90'
R = 1977.69'
L = 95.78'
E = 0.58'

SOUCOOK LANE
CURVE# 1
PI= 10+43.68
N = 299599.81
E = 1034442.08
Δ = 13°05'30.93" RT
T = 10.33'
R = 90.00'
L = 20.56'
E = 0.59'

SOUCOOK LANE
CURVE# 2
PI= 11+18.46
N = 299593.27
E = 1034516.67
Δ = 8°41'07.21" RT
T = 64.55'
R = 850.00'
L = 128.85'
E = 2.45'

NH 106
CURVE NO. 1
PI= 5381+03.41
N = 299720.91
E = 1034368.26
Δ = 9°21'25.73" RT
T = 351.68'
R = 4297.19'
L = 701.79'
E = 14.37'

NH 106
CURVE NO. 2
PI= 5395+40.18
N = 301158.64
E = 1034326.42
Δ = 40°28'22.81" RT
T = 1086.67'
R = 2947.67'
L = 2082.20'
E = 193.92'

TOTE ROAD
CURVE# 1
PI= 30+57.53
N = 300518.15
E = 1034436.79
Δ = 2°15'30.68" RT
T = 57.53'
R = 2918.50'
L = 115.04'
E = 0.57'

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS

SHEET 2

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC02	29613Aerc	29613A	15	25

29613Aerc.dgn ERC02 2/21/2020 7:28:28 AM "n34mth"

EROSION CONTROL PLAN LEGEND

PC	**PERIMETER CONTROL** SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
NB/PC	**NATURAL BUFFER/PERIMETER CONTROL** SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
CP	**CHANNEL PROTECTION** STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
CWB	**CLEAN WATER BYPASS** PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

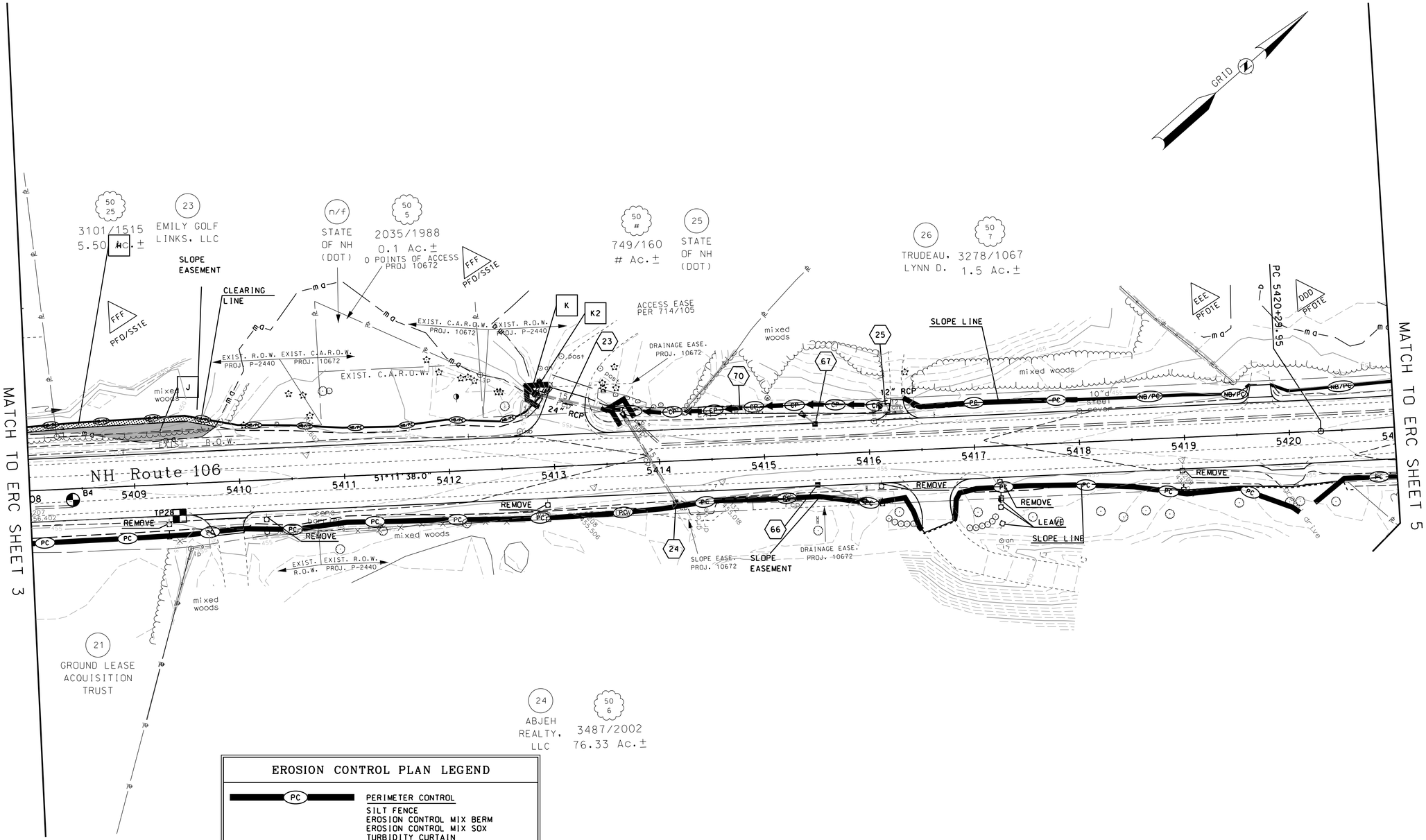
SDR PROCESSED NAME1 DATE DATE1
NEW DESIGN NAME2 DATE DATE2
SHEET CHECKED NAME3 DATE DATE3
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS SHEET 3

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC03	29613Aerc	29613A	16	25



EROSION CONTROL PLAN LEGEND

- PC — PERIMETER CONTROL
  - SILT FENCE
  - EROSION CONTROL MIX BERM
  - EROSION CONTROL MIX SOX
  - TURBIDITY CURTAIN
  - SHEET PILE
  - COFFER DAM
- NB/PC — NATURAL BUFFER/PERIMETER CONTROL
  - SILT FENCE
  - EROSION CONTROL MIX BERM
  - EROSION CONTROL MIX SOX
  - TURBIDITY CURTAIN
  - SHEET PILE
  - COFFER DAM
- CP — CHANNEL PROTECTION
  - STONE CHECK DAMS
  - STRAW WATTLES
  - CHANNEL MATTING
  - CLASS D EROSION STONE
  - CLASS C STONE
- CWB — CLEAN WATER BYPASS
  - PUMP THROUGH PIPE
  - DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

NUMBER	DATE	STATION

REVISIONS AFTER PROPOSAL — DESCRIPTION

SDR PROCESSED	NAME1	DATE	DATE1	
NEW DESIGN	NAME2	DATE	DATE2	
SHEET CHECKED	NAME3	DATE	DATE3	
AS BUILT DETAILS		DATE		

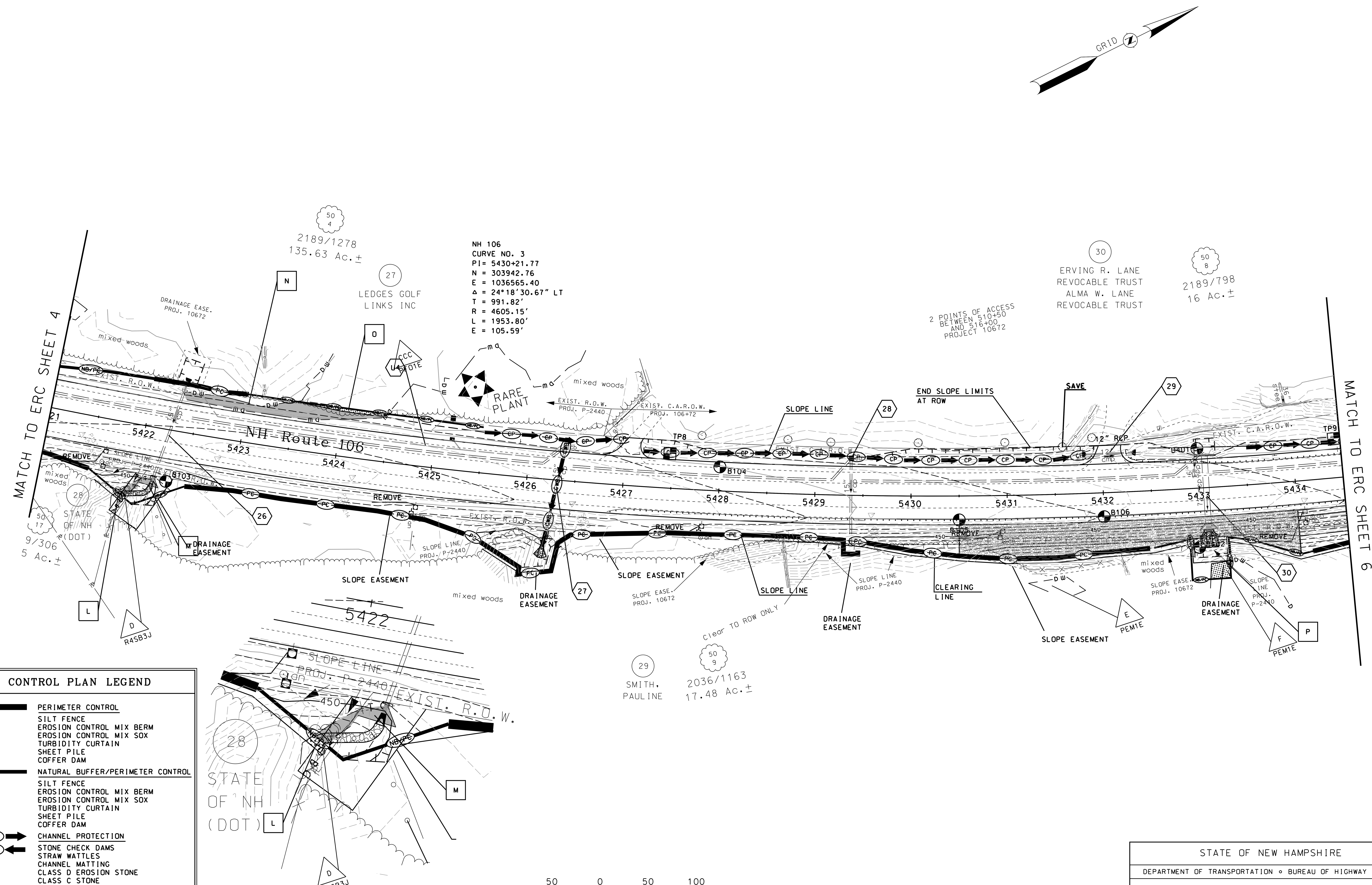
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS
SHEET 4

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC04	29613Aerc	29613A	17	25

29613Aerc.dgn ERC04 2/21/2020 7:28:30 AM "n34mth"

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	STATION	DESCRIPTION



EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
SILT FENCE
EROSION CONTROL MIX BERM
EROSION CONTROL MIX SOX
TURBIDITY CURTAIN
SHEET PILE
COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
SILT FENCE
EROSION CONTROL MIX BERM
EROSION CONTROL MIX SOX
TURBIDITY CURTAIN
SHEET PILE
COFFER DAM

CP — CHANNEL PROTECTION
STONE CHECK DAMS
STRAW WATTLES
CHANNEL MATTING
CLASS D EROSION STONE
CLASS C STONE

CWB — CLEAN WATER BYPASS
PUMP THROUGH PIPE
DRAIN THROUGH PIPE OR CHANNEL

SDR PROCESSED NAME1 DATE DATE1
NEW DESIGN NAME2 DATE DATE2
SHEET CHECKED NAME3 DATE DATE3
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

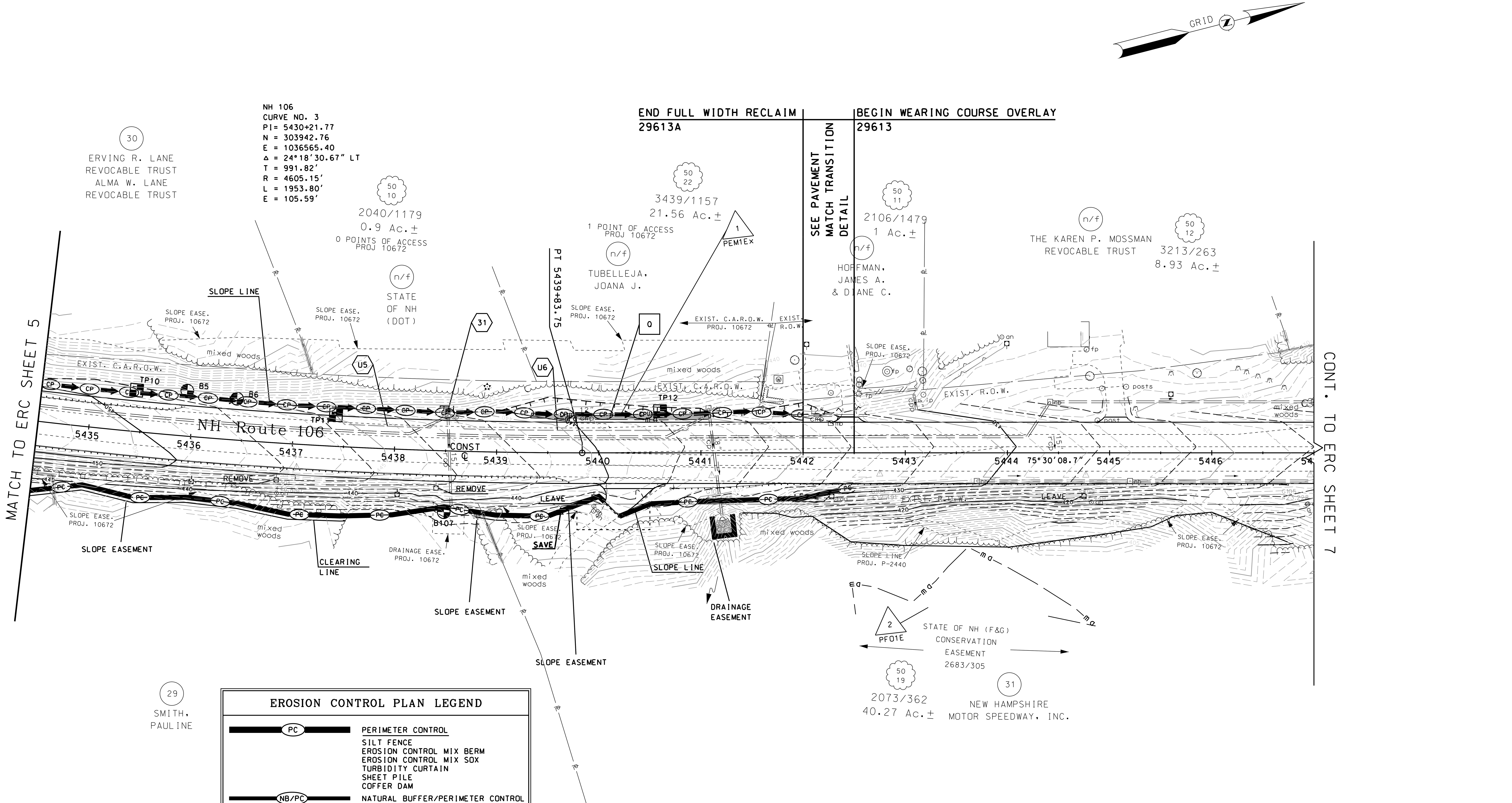
EROSION CONTROL PLANS
SHEET 5

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC05	29613Aerc	29613A	18	25

29613Aerc.dgn ERC05 2/21/2020 7:28:31 AM "n34mth"

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE



GRID
NH 106
CURVE NO. 3
PI= 5430+21.77
N = 303942.76
E = 1036565.40
Δ = 24°18'30.67" LT
T = 991.82'
R = 4605.15'
L = 1953.80'
E = 105.59'
30
ERVING R. LANE
REVOCABLE TRUST
ALMA W. LANE
REVOCABLE TRUST
50
10
2040/1179
0.9 Ac.±
0 POINTS OF ACCESS
PROJ 10672
n/f
STATE
OF NH
(DOT)
END FULL WIDTH RECLAIM
29613A
SEE PAVEMENT
MATCH TRANSITION
DETAIL
BEGIN WEARING COURSE OVERLAY
29613
50
22
3439/1157
21.56 Ac.±
1 POINT OF ACCESS
PROJ 10672
1
PEM1Ex
n/f
TUBELLEJA,
JOANA J.
PT 5439+83.75
50
11
2106/1479
1 Ac.±
n/f
HOFFMAN,
JAMES A.
& DIANE C.
n/f
THE KAREN P. MOSSMAN
REVOCABLE TRUST
50
12
3213/263
8.93 Ac.±
SLOPE LINE
SLOPE EASE.
PROJ. 10672
mixed woods
EXIST. C.A.R.O.W.
EXIST. C.A.R.O.W.
PROJ. 10672
EXIST.
R.O.W.
EXIST. R.O.W.
31
U5
U6
Q
TP10
TP11
TP12
B5
B6
B107
CP
PC
NH Route 106
5435
5436
5437
5438
CONST ℄
5439
5440
5441
5442
5443
5444
75°30'08.7"
5445
5446
MATCH TO ERC SHEET 5
CONT. TO ERC SHEET 7
REMOVE
LEAVE
SAVE
SLOPE EASEMENT
CLEARING
LINE
DRAINAGE EASE.
PROJ. 10672
SLOPE LINE
DRAINAGE
EASEMENT
SLOPE LINE
PROJ. P-2440
2
PF01E
STATE OF NH (F&G)
CONSERVATION
EASEMENT
2683/305
50
19
2073/362
40.27 Ac.±
31
NEW HAMPSHIRE
MOTOR SPEEDWAY, INC.
29
SMITH,
PAULINE

EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP — CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CWB — CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS
SHEET 6

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC06	29613Aerc	29613A	19	25

REVISIONS AFTER PROPOSAL

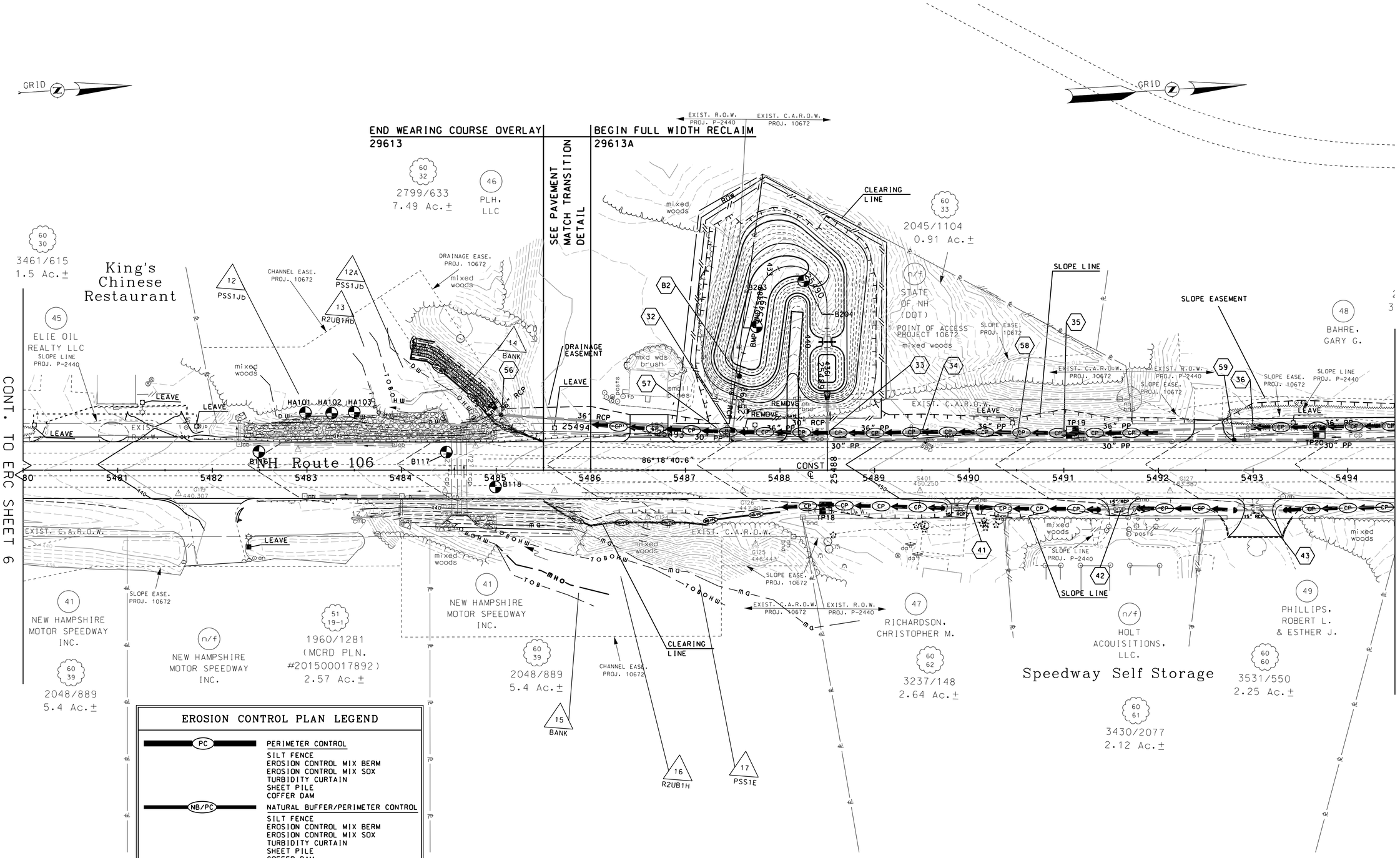
NUMBER	DESCRIPTION	DATE	STATION

	NAME	DATE
SDR PROCESSED	NAME1	DATE1
NEW DESIGN	NAME2	DATE2
SHEET CHECKED	NAME3	DATE3
AS BUILT DETAILS		DATE

END WEARING COURSE OVERLAY
29613

SEE PAVEMENT MATCH TRANSITION DETAIL

BEGIN FULL WIDTH RECLAIM
29613A



EROSION CONTROL PLAN LEGEND

PC	PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
CP	CHANNEL PROTECTION
	STONE CHECK DAMS
	STRAW WATTLES
	CHANNEL MATTING
	CLASS D EROSION STONE
	CLASS C STONE
CWB	CLEAN WATER BYPASS
	PUMP THROUGH PIPE
	DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS
SHEET 10

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC07	29613Aerc	29613A	20	25

29613Aerc.dgn ERC07 2/21/2020 7:28:33 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	DATE	STATION

MATCH TO ERC SHEET 7

MATCH TO ERC SHEET 9

GRID N

HOLLOW ROOT ROAD
CURVE# 1
PI= 501+21.49
N = 311483.07
E = 1037449.99
Δ = 54°01'52.36" LT
T = 28.04'
R = 55.00'
L = 51.87'
E = 6.74'

NH 106
CURVE NO. 5
PI= 5510+95.42
N = 311952.03
E = 1037597.93
Δ = 5°07'03.32" RT
T = 550.15'
R = 12310.52'
L = 1099.56'
E = 12.29'

EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP — CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CWB — CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

	NAME	DATE
SDR PROCESSED	NAME1	DATE1
NEW DESIGN	NAME2	DATE2
SHEET CHECKED	NAME3	DATE3
AS BUILT DETAILS		DATE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS
SHEET 11

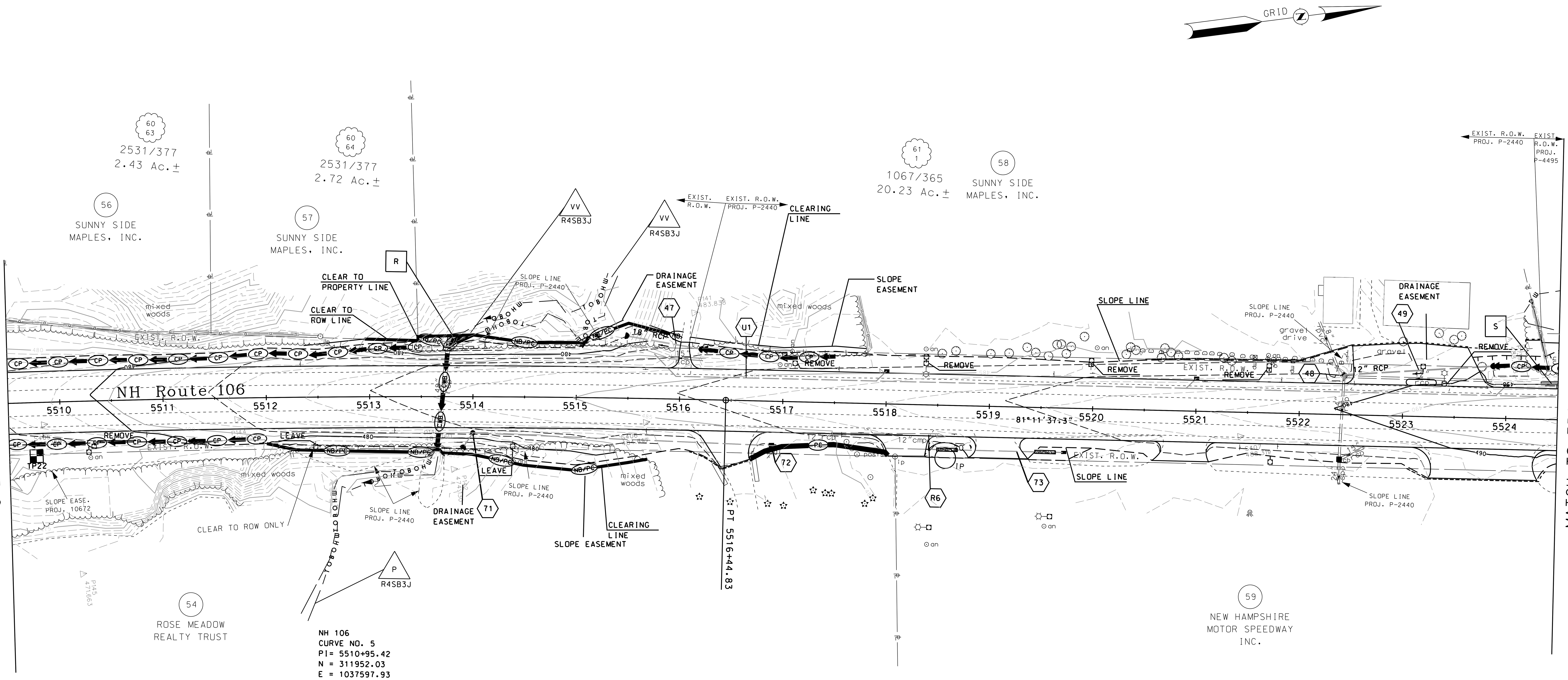
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC08	29613Aerc	29613A	21	25

29613Aerc.dgn ERC08 2/21/2020 7:28:33 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED NAME1 DATE DATE1
NEW DESIGN NAME2 DATE DATE2
SHEET CHECKED NAME3 DATE DATE3
AS BUILT DETAILS DATE



NH 106
CURVE NO. 5
PI= 5510+95.42
N = 311952.03
E = 1037597.93
Δ = 5°07′03.32″ RT
T = 550.15′
R = 12310.52′
L = 1099.56′
E = 12.29′

EROSION CONTROL PLAN LEGEND

PERIMETER CONTROL (PC)
SILT FENCE
EROSION CONTROL MIX BERM
EROSION CONTROL MIX SOX
TURBIDITY CURTAIN
SHEET PILE
COFFER DAM

NATURAL BUFFER/PERIMETER CONTROL (NB/PC)
SILT FENCE
EROSION CONTROL MIX BERM
EROSION CONTROL MIX SOX
TURBIDITY CURTAIN
SHEET PILE
COFFER DAM

CHANNEL PROTECTION (CP)
STONE CHECK DAMS
STRAW WATTLES
CHANNEL MATTING
CLASS D EROSION STONE
CLASS C STONE

CLEAN WATER BYPASS (CWB)
PUMP THROUGH PIPE
DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS
SHEET 12

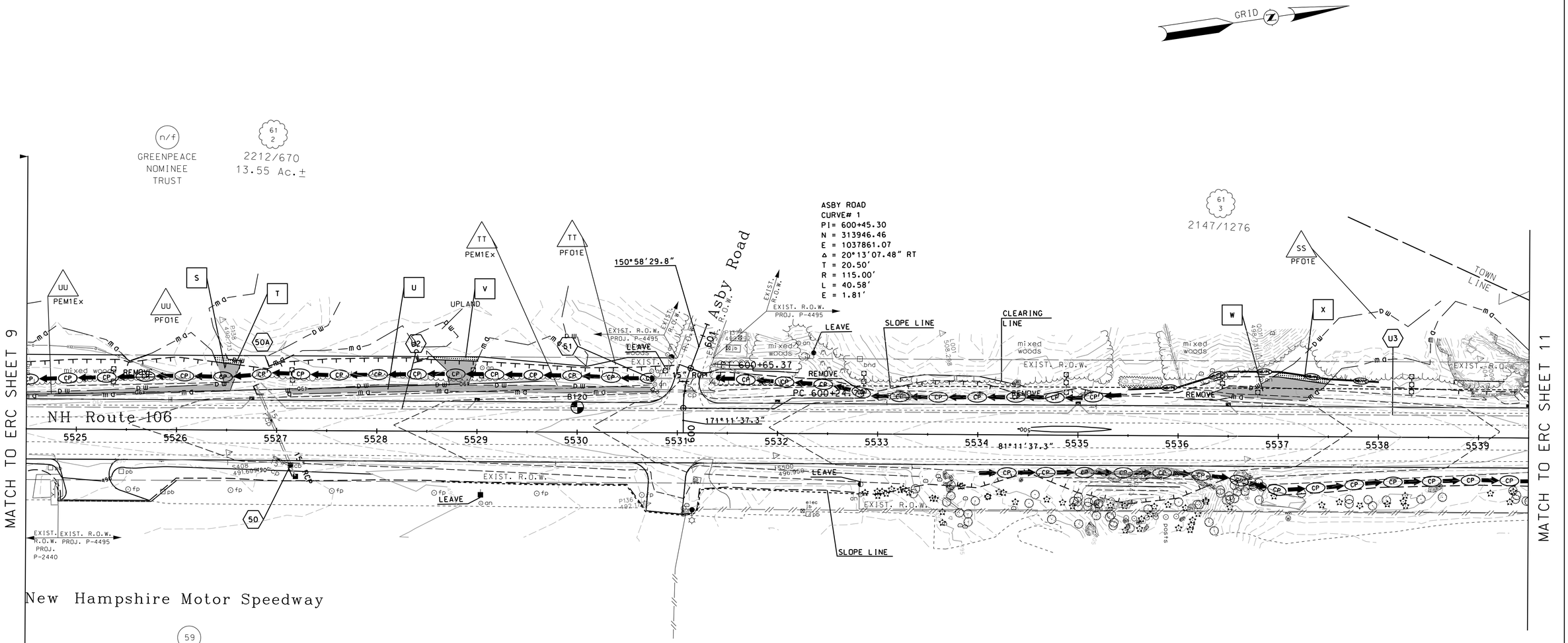
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC09	29613Aerc	29613A	22	25

29613Aerc.dgn ERC09 2/21/2020 7:28:34 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	DATE	STATION

SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE



59
NEW HAMPSHIRE MOTOR SPEEDWAY INC.
615
1879/252 1879/252
1763/720 1763/720

EROSION CONTROL PLAN LEGEND

2264

PERIMETER CONTROL
SILT FENCE
EROSION CONTROL MIX BERM
EROSION CONTROL MIX SOX
TURBIDITY CURTAIN
SHEET PILE
COFFER DAM

NATURAL BUFFER/PERIMETER CONTROL
SILT FENCE
EROSION CONTROL MIX BERM
EROSION CONTROL MIX SOX
TURBIDITY CURTAIN
SHEET PILE
COFFER DAM

CHANNEL PROTECTION
STONE CHECK DAMS
STRAW WATTLES
CHANNEL MATTING
CLASS D EROSION STONE
CLASS C STONE

CLEAN WATER BYPASS
PUMP THROUGH PIPE
DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS SHEET 13

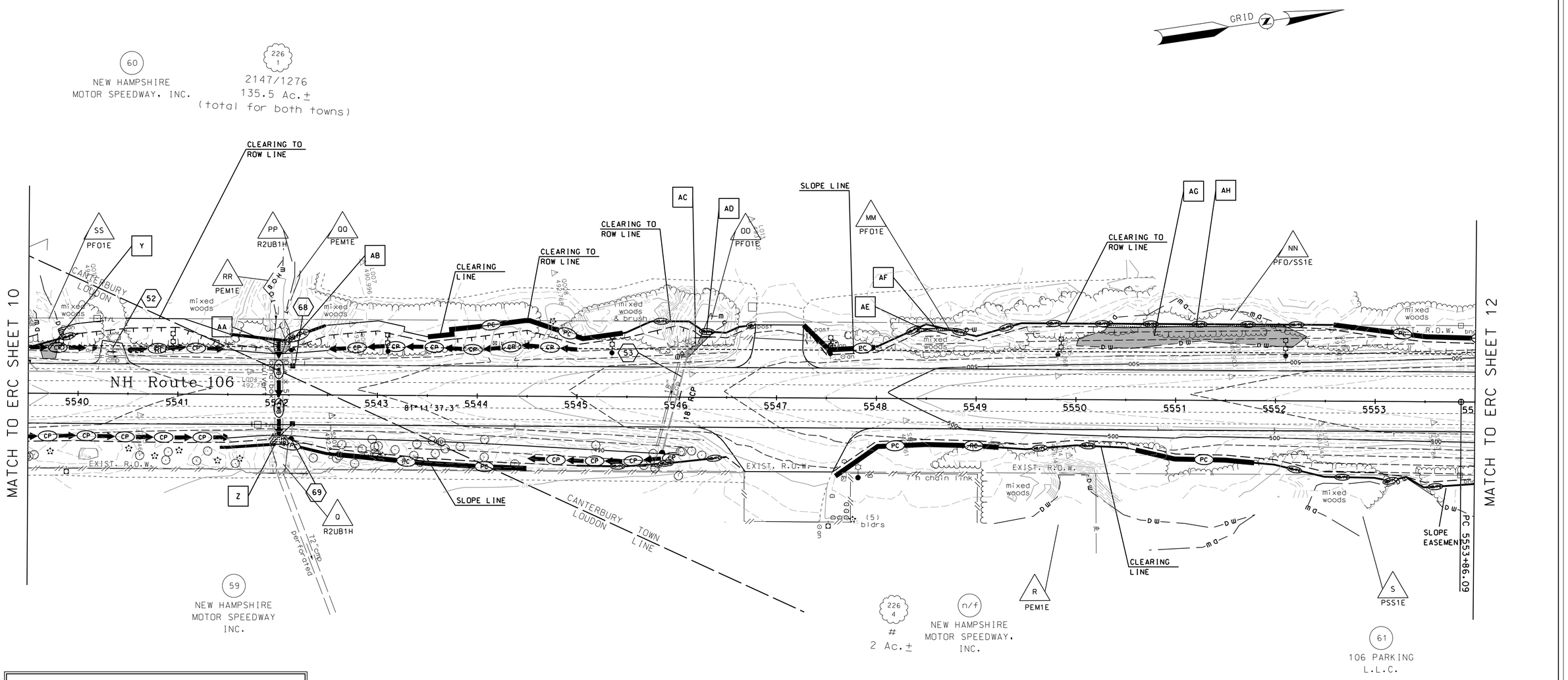
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC10	29613Aerc	29613A	23	25

29613Aerc.dgn ERC10 2/21/2020 7:28:35 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION
		STATION

SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE



EROSION CONTROL PLAN LEGEND

PC	PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
CP	CHANNEL PROTECTION STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
CWB	CLEAN WATER BYPASS PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

NH 106
CURVE NO. 6
PI= 5557+50.33
N = 316552.79
E = 1038310.68
Δ = 7°16'30.00" RT
T = 364.24'
R = 5729.58'
L = 727.50'
E = 11.57'

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS SHEET 14

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC11	29613Aerc	29613A	24	25

29613Aerc.dgn ERC11 2/21/2020 7:28:36 AM "n34mth"

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

END CONSTRUCTION
STATION 5560+00

LIMITS OF WORK
STATION 5562+50

GRID

60
NEW HAMPSHIRE
MOTOR SPEEDWAY, INC.

226
1
2147/1276
135.5 Ac.±
(total in both towns)

MATCH TO ERC SHEET 11

NH Route 106

SLOPE LINE
SLOPE CLEARING LINE
PROJ. P-4495
CLEARING LINE
CLEAR TO ROW LINE
SLOPE LINE
CLEARING LINE

EXIST. R.O.W.
EXIST. R.O.W.
PROJ. P-4495

61
106 PARKING
L.L.C.

226
3
2682/1457

61
4
2682/1457

n/f
BURTT,
BARBARA M.

226
2
PROB. 48858
30.37 Ac.±

EROSION CONTROL PLAN LEGEND

PC	PERIMETER CONTROL
	SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL
	SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
CP CP CP	CHANNEL PROTECTION
CP CP CP	STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
CWB CWB CWB	CLEAN WATER BYPASS
CWB CWB CWB	PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

NH 106
CURVE NO. 6
PI= 5557+50.33
N = 316552.79
E = 1038310.68
Δ = 7°16'30.00" RT
T = 364.24'
R = 5729.58'
L = 727.50'
E = 11.57'

50 0 50 100
SCALE IN FEET

	NAME	DATE
SDR PROCESSED	NAME1	DATE1
NEW DESIGN	NAME2	DATE2
SHEET CHECKED	NAME3	DATE3
AS BUILT DETAILS		DATE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS
SHEET 15

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC12	29613Aerc	29613A	25	25

29613Aerc.dgn ERC12 2/21/2020 7:28:36 AM "n34mth"

Large, Sarah

From: Rae, Dena
Sent: Wednesday, January 29, 2020 4:19 PM
To: Crickard, Ronald
Subject: Deed/Easements acquired for 29613 Wetlands Permit Application
Attachments: ~Recorded Document Construction Easement 032819 Loudon-Penguin Real Estate Holdings LLC.pdf; ~Recorded Document Drainage Easement 040919 LP Gas Equipment.pdf; ~Recorded Document Drainage Easement 051419 Fillmore Industries Inc.pdf; ~Recorded Document Drainage Easement 052119 Swensco Property Management LLC.pdf; ~Recorded Document Drainage Easement 110519 Sunny Side Maples.pdf; ~Recorded Document Dranage_Slope Easement 032619 Estate of Lorraine F Austin.pdf; ~Recorded Document Slope and Drain Easement 072919 NH Motor Speedway (01).pdf; ~Recorded Document Slope and Drainage Easement 040919 Whinnie Topham.pdf; ~Recorded Document Slope and Drainage Easement 101519 Pauline Smith.pdf; ~Recorded Document Slope Easement 061319 106 Parking L.L.C.pdf; ~Recorded Document Warranty Deed 012220 PLH LLC.pdf; ~Recorded Document Warranty Deed 070119 Town of Loudon.pdf

Ron,
As discussed, attached are the deed/easements for the following parcels:

Parcels: 3 Town of Loudon
12 Loudon-Penguin Real Estate Holdings, LLC
14 Swensco Property Management, LLC
15 L.P. Gas Equipment, Inc.
17 Loraine f. Austin
18 Fillmore Industries, Inc.
29 Pauline Smith
58 (is now labeled parcel 56) Sunny Side Maples, Inc.
61 106 Parking, LLC
62 NHMS, Inc.
63 Gayle A. McWhinnie & Jonathan m. Topham

Notes: On the sheet you gave me –
On the first table –
Parcel 16 does not have any project impacts so no deed is necessary.
Parcels 20, 22, 23 the owner negotiated a land swap for the project impacts and those deeds are in the process of being completed.

On the second table
parcel 3 is labeled as Swensco – it actually belongs to the Town of Loudon.
Parcel 5 belonging to Fillmore will be a condemnation. We are scheduled to file the declaration of taking on 2/5/2020. Due to the inability to reach an agreed value for the impact we needed to exercise the eminent domain process. There are statutory guidelines that we are required to meet before such an

AFMI item #10 Easements

10. Based on the plans provided, wetlands impacts take place beyond the existing right-of-way (ROW) at the following parcels:

Plan Sheet (of 28)	Parcel ID Number	Name	Wetland Impact Location ID	Station
5	12	Loudon-Penguin Real Estate Holdings, LLC	A, B	5398+50
5	14	Swensco Property Management, LLC	C	5398+50
5	15	L.P. Gas Equipment, Inc.	C	5398+50
5	16	Kenney, Stuart A.	A, B	5398+00 to 5399+00
5	17	Austin, Lorraine F.	A, B, D, E, F	5398+75 to 5403+25
5	18	Fillmore Industries, Inc.	C	5398+50
5, 6	20, 22, 23	Emily Golf Links, LLC	H, I, J, K	5403+50 to 5412+75
7	29	Smith, Pauline	L, M, P	5422+00 and 5433+00
9	58	Sunny Side Maples, Inc.	R	5513+75
12	61	106 Parking, LLC	AI, AJ	5554+50 to 5555+25
13	62	New Hampshire Motor Speedway, Inc. (Mitigation Parcel with NHF&G Conservation Easement)	AO, AP, AQ, AR, AT, AS	5600+50 to 5606
*13	*63	*McWhinnie, Gayle A. & Topham, Jonathan M.	Unidentified Impact Area *(See Item #3)	*5608+75 to 5610

Parcel 16 – No Impacts

Emily Golf Link Parcels Negotiating a Land Swap. In process – Deed Not Return Yet

Parcel 58 is Now called Parcel 56 – Deed included

Please obtain signed easements or authorization letters from the affected landowners, pursuant to NH Administrative Rule Env-Wt 304.04(a). Additionally, please note that a permit cannot be issued, pursuant to RSA 482-A:11, II., and NH Administrative Rule Env-Wt 502.02(b) without an easement or other signed authorization for work to take place on the property of these landowners. Additionally, please note that landowner authorization in the form of permanent easements will also be required for the construction of the two stormwater management ponds proposed on the following properties:

Plan Sheet (of 28)	Parcel ID Number	Name	BMP Pond ID
16	3	Swensco Property Management, LLC	5381
16	5	Fillmore Industries, Inc.	5381
21	46	PLH, LLC	5488

Town of Loudon => Deed attached

– condemnation being filed in February

11. To ensure that the two proposed stormwater management ponds meet the requirements in Env-Wq 1500, please include the BMP sheets for both proposed stormwater ponds that show that they will provide adequate treatment.
12. According to the NH Natural Heritage Bureau (NHB) report dated August 29, 2019, small whorled pogonia (*Isotria meleoloides*) as well as an unidentified sensitive plant species are present in the vicinity of the project. Please contact Amy Lamb of the NHB at amy.lamb@dncr.nh.gov or (603) 271-2834 to address any concerns the NHB may have regarding these species and provide a copy of all correspondence as part of your response to this letter in accordance with Rule Env-Wt 302.04(a)(7).
13. According to the NHB report dated August 29, 2019, rare species, including American eel (*Anguilla rostrata*), bridle shiner (*Notropis bifrenatus*), and wood turtle (*Glyptemys insculpta*), are located in the vicinity of the project. Please contact Kim Tuttle of the NH Fish and Game Department (NHF&G) at kim.tuttle@wildlife.nh.gov or (603) 271-6544 to address any concerns NHF&G may have regarding these species and provide a copy of all correspondence as part of your response to this letter in accordance with Rule Env-Wt 302.04(a)(7).

Docket Number: 201900004543
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3626 PG: 257, 3/28/2019 1:28 PM
RECORDING $10.00
SURCHARGE $2.00

B
1055
2-
Grantee

CONSTRUCTION EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, Loudon-Penguin Real Estate Holdings, LLC, a New Hampshire limited liability company with a principal office address of 577 Route 106N, Loudon, NH 03307, for good and valuable consideration, grants to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Loudon, and shown as Parcel 12 on a Plan of Loudon - Canterbury X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation and to be recorded in the Merrimack County Registry of Deeds.

Granting the temporary right and easement to construct or reconstruct the driveway on land of the Grantor, for the purpose of matching the driveway to NH Route 106, as shown on the above-referenced Plan in accordance with the standard practice of highway construction. Said temporary construction easement area shall be affected for a period of thirty-six (36) months during the construction of the project. The property owner shall have unencumbered use of the area at all other times. Said easement shall expire on October 31, 2029, or one (1) year after completion of the construction for the project, whichever date shall come first.

Being an interest in that property recorded August 31, 2011, at the Merrimack County Registry of Deeds in Book 3270, Page 832.

Executed this 21st day of March, 2019.

LOUDON-PENGUIN REAL ESTATE HOLDINGS, LLC

By: Rabih Fmad

Title: Member

STATE OF NEW HAMPSHIRE, SS A.D., 2019.

On this 21st day of March, 2019, before me, John L. Johnson Jr. the undersigned officer, personally appeared, Rabih Fmad, who acknowledged as being the [title] Member of Loudon-Penguin Real Estate Holdings, LLC, and that as such [title] Member, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the Limited Liability Company as [title] Member.

IN WITNESS WHEREOF I have hereunto set my hand and seal.

JOHN L. JOHNSON JR.
NOTARY PUBLIC - NEW HAMPSHIRE
My Commission Expires March 21, 2023

Notary Public/Justice of the Peace
My commission expires: 3/21/2023

JOHN L. JOHNSON JR

(1)
STATE OF NH D.O.T
P.O. Box 483
CONCORD NH 03301

Docket Number: 201900005268
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3627 PG: 396, 4/9/2019 2:17 PM
RECORDING $14.00
SURCHARGE $2.00

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14 55
2 21

DRAINAGE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, L.P. Gas Equipment Inc., a New Hampshire corporation, with a principal office address of 28 Industrial Way, Rochester, NH 03867 ("Grantor"), for good and valuable consideration, grants to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483 ("Grantee"), the following described property right on a portion of the land of the Grantor located in the Town of Loudon, County of Merrimack, State of New Hampshire, identified as Parcel "15" on that certain plan on file in the records of the New Hampshire Department of Transportation entitled "NH Route 106 Right-Of-Way Layout Plans, Town of Loudon", State Project No. 29613, Sheet No. 4 of 21, consisting of 373 square feet more or less, as shown and substantially depicted thereon as the "Drainage Easement" on Parcel 15 (the "Easement Area"):

Granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106, in the area shown on the above-referenced Plan and defined herein as the Easement Area in accordance with the standard practice of highway construction.

By recording this Drainage Easement, Grantee covenants that: (i) in the event the surface of Grantor's servient parcel is disturbed at any time and from time-to-time by Grantee or any party acting on behalf of Grantee, then Grantee, at its sole cost and expense, within a reasonable time thereafter, shall repair and restore the such surface area substantially to the condition which existed prior to any such disturbance, and (ii) all work contemplated by this Drainage Easement shall be completed in a timely fashion and in such a manner as to minimize interference with the lawful rights of the Grantor.

Being an interest in that property recorded July 11, 1992, at the Merrimack County Registry of Deeds in Book 1887, Page 1961, and also property recorded March 5, 1999, at said registry in Book 2144, Pages 583 and 589.

Executed this 3rd day of April, 2019.

L.P. GAS EQUIPMENT, INC

By: _____
Timothy D. Condon, Secretary

STATE OF NEW HAMPSHIRE, SS A. D., 2019.

On this 3RD day of April, 2019, before me, EVA K HACKETT the undersigned officer, personally appeared, Timothy D. Condon, who acknowledged as being the Secretary of L.P. Gas Equipment, Inc., and that as such Secretary, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Secretary.

IN WITNESS WHEREOF I have hereunto set my hand and seal.

EVA K. HACKETT COMMISSION EXPIRES NOTARY PUBLIC OCTOBER 3, 2023 STATE OF NEW HAMPSHIRE

Notary Public/Justice of the Peace
My commission expires: 10/3/23

Docket Number: 201900007475
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3630 PG: 1655, 5/14/2019 9:35 AM
RECORDING $10.00
SURCHARGE $2.00

Env. State of NH-Dot

B
10.55
2.50

DRAINAGE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT Fillmore Industries, Inc., a New Hampshire Corporation having a principal office address of 528 Route 106N, Loudon 03307, County of Merrimack, State of New Hampshire for good and valuable consideration grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Loudon, and shown as Parcel 18 on a Plan of Loudon-Canterbury, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation:

Granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106 in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the temporary right and easement to construct or reconstruct the driveway on land of the Grantor, for the purpose of matching the driveway to NH Route 106 as shown on the above-referenced Plan in accordance with the standard practice of highway construction. Said temporary construction easement area shall be affected for a period of thirty-six (36) months during the construction of the project. The property owner shall have unencumbered use of the area at all other times. Said easement shall expire on October 31, 2029, or one (1) year after completion of the construction for the project, whichever date shall come first.

Being an interest in that property recorded August 11, 1989, at the Merrimack County Registry of Deeds in Book 1804, Page 1047.

Executed this 30th day of April, 2019.

FILLMORE INDUSTRIES, INC.

By: _____
Gregory Scott Fillmore, President

STATE OF NEW HAMPSHIRE, Merrimack SS A. D., 2019.

On this 30th day of April, 2019, before me, Linda K. Schoffield the undersigned officer, personally appeared, Gregory Scott Fillmore, who acknowledged as being the President of Fillmore Industries, Inc., and that as such President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as President.

IN WITNESS WHEREOF I have hereunto set my hand and seal.

LINDA K. SCHOFFIELD NOTARY PUBLIC NEW HAMPSHIRE

_____
Notary Public/~~Justice of the Peace~~
My commission expires: June 24, 2020

Linda K. Schoffield
Notary Public - NH
My Commission Expires June 24, 2020

T:\LOUDON\29613\2019\Easement\18FillmoreIndust0404.doc

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1055
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Grantee

Docket Number: 201900008035
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3631 PG: 1474, 5/21/2019 3:15 PM
RECORDING $10.00
SURCHARGE $2.00

DRAINAGE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, SWENSCO Property Management, LLC, a Domestic Limited Liability Company with a principal office address of 25 Oak Hill Drive, Loudon 03307, County of Merrimack, State of New Hampshire for good and valuable consideration grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property right on land of the Grantor located in the Town of Loudon, and shown as Parcel 14 on a Plan of Loudon -Canterbury, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation and to be recorded in the Merrimack County Registry of Deeds:

Granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106, in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

Being an interest in that property recorded January 18, 2006, at the Merrimack County Registry of Deeds in Book 2860, Page 707.

Executed this 8th day of May, 2019.

SWENSCO PROPERTY MANAGEMENT, LLC

By: _____
David J. Swenson, Manager/Member

STATE OF NEW HAMPSHIRE, SS A. D., 2019.

On this 8th day of May, 2019, before me, ~~Linda K. Schoffield,~~ John DeStefano the undersigned officer, personally appeared, David J. Swenson, who acknowledged as being the Manager/Member of SWENSCO Property Management, LLC, and that as such Manager/Member, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Manager/Member.

IN WITNESS WHEREOF I have hereunto set my hand and seal.

STATE OF NEW HAMPSHIRE NOTARY PUBLIC
OFFICIAL SEAL
JOHN DESTEFANO
NOTARY PUBLIC - NEW HAMPSHIRE
My Comm. Expires 01-10-2023

_____
Notary Public/Justice of the Peace
My commission expires: 1/10/2023

B/DOT
1455
2. Grantee

Docket Number: 201900020808
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3653 PG: 2685, 11/5/2019 12:41 PM
RECORDING $14.00
SURCHARGE $2.00

DRAINAGE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, Sunny Side Maples, Inc., a New Hampshire Corporation with a principle address of 130 Asby Road, Canterbury 03224, County of Merrimack, State of New Hampshire for good and valuable consideration grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Loudon, County of Merrimack, and shown as Parcel 56 on a Plan of Loudon-Canterbury, X-A001(201), 29613, on file in the records of the New Hampshire Department of Transportation:

Granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106 in the areas shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the permanent right and easement to construct, reconstruct and maintain slopes and embankments on land of the Grantor at such an angle as will hold NH Route 106 and the material in the slopes in repose against ordinary erosion in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the temporary right and easement for the purpose of supporting the reconstruction of the roadway on land of the Grantor as shown on the above-referenced Plan in accordance with the standard practice of highway construction. Said temporary construction easement area shall be affected for a period of thirty-six (36) months during the construction of the project. The property owner shall have unencumbered use of the area at all other times. Said easement shall expire on October 31, 2029, or one (1) year after completion of the construction for the project, whichever date shall come first.

Being interests in those properties recorded March 2, 1970, at the Merrimack County Registry of Deeds in Book 1067, Page 365 and July 9, 2003 at said Registry in Book 2531 Page 377.

Executed this 27th day of September, 2019.

SUNNY SIDE MAPLES, INC.

By: _____
Michael Moore

Title: President

STATE OF NEW HAMPSHIRE, Merrimack SS A. D., 2019.

On this 27th day of September, 2019, before me, Kayla Scaldini the undersigned officer, personally appeared, Michael Moore, who acknowledged himself/herself as being the President of Sunny Side Maples Inc., and that as such President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as President.

IN WITNESS WHEREOF I have hereunto set my hand and seal.

_____
Notary Public/~~Justice of the Peace~~
My commission expires: ~~9/23/19~~ 9/7/21

KAYLA SCALDINI
Commission Expires
NOTARY PUBLIC
09-07-2021
NEW HAMPSHIRE

Docket Number: 201900004394
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3625 PG: 2599, 3/26/2019 11:50 AM
RECORDING $14.00
SURCHARGE $2.00

1455 Grantee
2-

DRAINAGE/SLOPE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, the Estate of Lorraine F. Austin, of 31 Drake Circle, Loudon 03307, County of Merrimack, State of New Hampshire for good and valuable consideration grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Loudon, and shown as Parcel 17 on a Plan of Loudon-Canterbury, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation and to be recorded in the Merrimack County Registry of Deeds:

Granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106 in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the permanent right and easement to construct, reconstruct and maintain slopes and embankments on land of the Grantor at such an angle as will hold NH Route 106 and the material in the slopes in repose against ordinary erosion in the areas shown on the above-referenced Plan in accordance with the standard practice of highway construction.

Being interests in that property recorded April 18, 1958, at the Merrimack County Registry of Deeds in Book 823, Page 341, granting the property to Arthur E. and Lorraine F. Austin as Joint Tenants with Rights of Survivorship. Arthur died September 27, 1970 leaving Lorraine as the sole owner. See Merrimack County Probate Docket 57889. Frances Lorraine Austin, a/k/a Lorraine Austin died testate August 13, 1999 leaving the property to her son, Arthur E. Austin as Executor of her Estate. See Merrimack County Probate Docket 317-2000-ET-00649.

Grantor, releases to The State of New Hampshire all rights of homestead and other interests therein, as it pertains with the above conveyance.

Executed this 13th day of March, 2019.

ESTATE OF LORRAINE F. AUSTIN

Arthur E. Austin

Arthur E. Austin, Executor

STATE OF New Hampshire

COUNTY OF Merrimack

This instrument was acknowledged before me on the 13th day of March, 2019, by Arthur E. Austin, Executor.

Notary Public/~~Justice of the Peace~~
My commission expires: 9/7/2021

KAYLA SCALDINI
Commission Expires
NOTARY PUBLIC
09-07-2021
NEW HAMPSHIRE

NH DOT
P.O. Box 483
Concord, NH 03302

B
14455
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Docket Number: 201900012973
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3639 PG: 2647, 7/29/2019 9:41 AM
RECORDING $14.00
SURCHARGE $2.00

SLOPE AND DRAIN EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, New Hampshire Motor Speedway, Inc., a New Hampshire corporation with a principal office address of 1122 NH Route 106, Loudon, New Hampshire 03307 for good and valuable consideration paid grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor, not homestead, located in the Towns of Loudon and Canterbury, New Hampshire, and shown as Parcel 62 on a plan of Loudon-Canterbury, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation.

Granting the permanent right and easement to construct, reconstruct and maintain slopes and embankments on land of the Grantor at such an angle as will hold NH Route 106 and the material in the slopes in repose against ordinary erosion in the areas shown on the above-referenced Plan in accordance with the standard practice of highway construction.

Also granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106 in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

Being interests in that property recorded October 8, 1997 at the Merrimack County Registry of Deeds in Book 2073, Page 351, conveying said property from Pike Industries, Inc. to New Hampshire Speedway, Inc. New Hampshire Speedway, Inc. subsequently changed its name to New Hampshire Motor Speedway, Inc. See Name Change affidavit recorded July 8, 2008, at said Registry in Book 3076 Page 293.

Executed this 11 day of July, 2019.

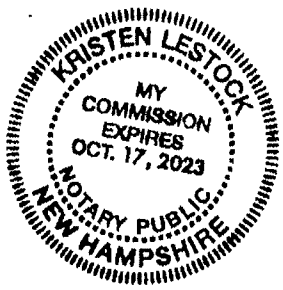
NEW HAMPSHIRE MOTOR SPEEDWAY, INC.

By: _____
Name: David McGrath
Title: Executive Vice President and General Manager

STATE OF NEW HAMPSHIRE
COUNTY OF Merrimack

On this 11 day of July, 2019, before me, Kristen Lestock the undersigned officer, personally appeared, David McGrath, who acknowledged himself as being the Executive Vice President and General Manager of New Hampshire Motor Speedway, Inc., and that as such Executive Vice President and General Manager, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Executive Vice President and General Manager.

IN WITNESS WHEREOF I have hereunto set my hand and seal.



Kristen Lestock 7/11/19
Notary Public/Justice of the Peace
My commission expires: 10/17/2023

(2) STATE OF NH DOT

Docket Number: 201900005269
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3627 PG: 398, 4/9/2019 2:17 PM
RECORDING $10.00
SURCHARGE $2.00

B/10 55/32/0

SLOPE AND DRAINAGE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, WE, Gayle A. McWhinnie and Jonathan H. Topham. both unmarried, of 1442 Route 106, Canterbury 03224, County of Merrimack, State of New Hampshire for good and valuable consideration grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Canterbury, and shown as Parcel 63 on a Plan of Loudon-Canterbury, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation and to be recorded in the Merrimack County Registry of Deeds:

Granting the permanent right and easement to construct, reconstruct and maintain slopes and embankments on land of the Grantors at such an angle as will hold NH Route 106 and the material in the slopes in repose against ordinary erosion in the areas shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantors abutting or near NH Route 106 in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

Being an interest in that property recorded March 13, 2006, at the Merrimack County Registry of Deeds in Book 2873, Page 675.

Executed this 26th day of March, 2019.

Gayle A. McWhinnie

Jonathan H. Topham

STATE OF NEW HAMPSHIRE

COUNTY OF Merrimack

This instrument was acknowledged before me on the 26th day of March, 2019, by Gayle A. McWhinnie and Jonathan H. Topham.

JOHN L. JOHNSON JR. NOTARY PUBLIC/JUSTICE OF THE PEACE NEW HAMPSHIRE My Commission Expires March 21, 2023

Notary Public/Justice of the Peace
My commission expires: March 21, 2023

John L. Johnson Jr.

Docket Number: 201900019101
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3650 PG: 2073, 10/15/2019 3:31 PM
RECORDING $10.00
SURCHARGE $2.00

Grantee

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1055
2

SLOPE AND DRAINAGE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, I, Pauline Smith, single, of 210 Province Road, Belmont, County of Belknap, State of New Hampshire 03220, for good and valuable consideration, grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Loudon, and shown as Parcel 29 on a Plan of Loudon-Canterbury, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation:

Granting the permanent right and easement to construct, reconstruct and maintain slopes and embankments on land of the Grantor at such an angle as will hold NH Route 106 and the material in the slopes in repose against ordinary erosion in the areas shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the Grantor abutting or near NH Route 106, in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

Being an interest in that property recorded October 3, 1996, at the Merrimack County Registry of Deeds in Book 2036, Page 1163.

Executed this 12 day of September, 2019.

Pauline Smith
Pauline Smith

STATE OF New Hampshire
COUNTY OF Belknap

This instrument was acknowledged before me on the 12 day of September, 2019, by Pauline Smith.

NANCY L. WELSH NOTARY PUBLIC NEW HAMPSHIRE

Nancy Welsh
Notary Public/Justice of the Peace
My commission expires: 7/27/23

T:\LOUDON\29613\2019\Easement\29Smith0905.doc

NH DOT R.O.W
7 HAZEN DR. RM 100
CONCORD NH 03301

Docket Number: 201900009557
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3634 PG: 74, 6/13/2019 10:30 AM
RECORDING $14.00
SURCHARGE $2.00

B
14
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SLOPE EASEMENT

KNOW ALL MEN BY THESE PRESENTS THAT, 106 Parking L.L.C., a New Hampshire Limited Liability Company with a principle address of 340 Goboro Road, Epsom 03234, County of Merrimack, State of New Hampshire for good and valuable consideration grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, the following described property rights on land of the Grantor located in the Town of Loudon, and shown as Parcel 61 on a Plan of Loudon-Canterbury, X-A001(201), 29613, on file in the records of the New Hampshire Department of Transportation and to be recorded in the Merrimack County Registry of Deeds:

Granting the permanent right and easement to construct, reconstruct and maintain slopes and embankments on land of the Grantor at such an angle as will hold NH Route 106 and the material in the slopes in repose against ordinary erosion in the areas shown on the above-referenced Plan in accordance with the standard practice of highway construction.

And also granting the temporary right and easement for the purpose of matching the new roadway to land of the Grantor as shown on the above-referenced Plan in accordance with the standard practice of highway construction. Said temporary construction easement area shall be affected for a period of thirty-six (36) months during the construction of the project. The property owner shall have unencumbered use of the area at all other times. Said easement shall expire on October 31, 2029, or one (1) year after completion of the construction for the project, whichever date shall come first.

Being an interest in that property recorded July 22, 2004, at the Merrimack County Registry of Deeds in Book 2682, Page 1457.

Executed this 13th day of June, 2019.

106 PARKING L. L. C.

By: Peter D. Arvanitis (member)
Peter D. Arvanitis, Member

STATE OF NEW HAMPSHIRE, Merrimack SS A. D., 2019.

On this 13th day of June, 2019, before me, Kayla Scaldini the undersigned officer, personally appeared, Peter D. Arvanitis, who acknowledged himself as being the Member of 106 Parking L. L. C., and that as such Member, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Member.

IN WITNESS WHEREOF I have hereunto set my hand and seal.

Kayla Scaldini

Notary Public/~~Justice of the Peace~~
My commission expires: 9/7/2021

KAYLA SCALDINI
Commission Expires
NOTARY PUBLIC
09-07-2021
NEW HAMPSHIRE

Docket Number: 202000001510
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3663 PG: 949, 1/22/2020 11:15 AM
RECORDING $14.00
SURCHARGE $2.00

B 1455
P 0-
State of NH
DOT

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS THAT PLH, LLC a/k/a P.L.H. LLC, a New Hampshire Limited Liability Company with a principal office address of 136 Old Sharon Road, Jaffrey, NH 03452, for consideration paid, grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, with WARRANTY covenants,

A portion of a certain parcel of land, not homestead, situated on the Westerly side of NH Route 106, as now travelled, in the Town of Loudon, County of Merrimack and State of New Hampshire and being near the NH Route 106 Right-of-Way Alignment Station 172+00 and shown as Parcel 46 on a Plan of Loudon, X-A004(201), 29613, on file in the records of the New Hampshire Department of Transportation, bounded and described as follows:

Beginning at a point in the Westerly sideline of NH Route 106, as now travelled, said point also being in the division line between land of the Grantor and land now or formerly of the State of New Hampshire; thence Southerly with said sideline, a distance of fifty-six and thirteen hundredths (56.13) feet to a point; thence N 80° 13' 18" W, a distance of two hundred twenty six and eleven hundredths (226.11) feet to a point; thence N 26° 11' 02" W, a distance of approximately seventy-eight (78.00) feet to a point three hundred thirteen and seventy-one hundredths (313.71) feet Westerly of and directly opposite the NH Route 106 Right-of-Way Alignment Station 172+97.01, said point also being in the division line between land of the Grantor and land now or formerly of the State of New Hampshire; thence Easterly with said division line to the point of beginning.

Containing thirty-three hundredths (0.33) of an acre, more or less, and meaning and intending to describe a portion of the property conveyed to P.L.H. LLC by Warranty Deed recorded July 15, 2005 at the Merrimack County Registry of Deeds in Book 2799, Page 633. P.L.H. LLC is a/k/a PLH, LLC. See Name Affidavit recorded March 28, 2008 at said Registry in Book 3055 Page 1689.

And also granting a the permanent right and easement to construct, reconstruct, maintain, repair and operate ditches, culverts, pipes, catch basins or other facilities for drainage purposes over, under or through land of the of the Grantor abutting or near NH Route 106 in the area shown on the above-referenced Plan in accordance with the standard practice of highway construction.

It is hereby made a part of the before mentioned consideration and a condition to this instrument that the property taxes are to be pro-rated as of the date of execution of this instrument.

Executed this 9th day of January, 2020.

PLH, LLC

Stephen T. Pelkey, Member

STATE OF NEW HAMPSHIRE
COUNTY OF Merrimack

This instrument was acknowledged before me on the 9th day of January, 2020 by Stephen T. Pelkey, as Member of PLH, LLC.

Notary Public/~~Justice of the Peace~~
My commission expires: 10-3-23

CELESTE A. BLAIS
NOTARY PUBLIC
STATE OF NEW HAMPSHIRE
- MY COMMISSION EXPIRES OCTOBER 3, 2023 -

NH DOT
P.O. BOX 483
CONCORD NH 03302

Docket Number: 201900010964
Recorded in Merrimack County,NH
Susan Cragin, Register
BK: 3636 PG: 1364, 7/1/2019 1:06 PM
RECORDING $14.00
SURCHARGE $2.00

B
14 55
2 22

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS THAT, THE Town of Loudon, a New Hampshire Municipal Corporation with an address of 55 South Village Road, Suite 1, Loudon, New Hampshire 03307, for consideration paid, grant to the State of New Hampshire, whose address is PO Box 483, 7 Hazen Drive, Concord, New Hampshire 03302-0483, with WARRANTY covenants,

A certain parcel of land, situated on the Easterly side of NH Route 106, as now travelled, in the Town of Loudon, County of Merrimack, State of New Hampshire, and being near the NH Route 106 Right-of-Way Alignment Station 65+25 and shown as Parcel 3 on a Plan of Loudon-Canterbury, X-A004(21), 29613 on file in the records of the New Hampshire Department of Transportation bounded and described as follows:

Beginning at a point in the Easterly sideline of NH Route 106, as now traveled, said point being in the division line between land of the Grantor, and land now or formerly of Fillmore Industries, Inc., thence, Easterly with said division line to a point on a course running S 21° 27' 42" W, thence; S 21° 27' 42" W with said course to a point in the Northerly sideline of Soucook Lane, as now travelled, thence, Northwesterly with said sideline to the Easterly sideline of NH Route 106, as now travelled, thence, Northerly with said sideline to the point of beginning.

Containing 3,878 square feet, more or less and being a portion of the property recorded May 23, 1986, at the Merrimack County Registry of Deeds in Book 1566, Page 261.

Executed this 4th day of JUNE, 2019.

TOWN OF LOUDON, SELECTBOARD

Jeffrey C. Miller, Chairman

STATE OF NEW HAMPSHIRE
COUNTY OF MERRIMACK

This instrument was acknowledged before me on the 4th day of JUNE, 2019, by Jeffrey C. Miller who acknowledged himself as being the Chairman of the Town of Loudon, Selectboard and that as such Chairman, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Chairman.

Wendy L Young
Notary Public/Justice of the Peace
My commission expires:

OFFICIAL SEAL
WENDY L. YOUNG
NOTARY PUBLIC - NEW HAMPSHIRE
My Comm. Expires 3/05/20

S:\Right-Of-Way\Secure\LOUDON\29613\2019\Deeds\3TownofL

Executed this 4th day of JUNE, 2019.

TOWN OF LOUDON, SELECTBOARD

Roger A. Maxfield

Roger Maxfield, Selectman

STATE OF NEW HAMPSHIRE
COUNTY OF MERRIMACK

This instrument was acknowledged before me on the 4th day of JUNE 2019, 2019, by Roger Maxfield who acknowledged himself as being the Selectman of the Town of Loudon, Selectboard and that as such Selectman, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Selectman.

Wendy L. Young

Notary Public/Justice of the Peace
My commi[illegible]

STATE OF NEW HAMPSHIRE NOTARY PUBLIC WENDY L. [illegible] 3/25/20

Wendy L. Young

* * * * * * *

Executed this 4th day of JUNE, 2019.

TOWN OF LOUDON, SELECTBOARD

Stanley H. Prescott II

Stanley H. Prescott, II, Selectman

STATE OF NEW HAMPSHIRE
COUNTY OF MERRIMACK

This instrument was acknowledged before me on the 4th day of JUNE 2019, 2019, by Stanley H. Prescott, II who acknowledged himself as being the Selectman of the Town of Loudon, Selectboard and that as such Selectman n, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation as Selectman.

Wendy L. Young

Notary Public/Justice of the Peace
My comm[illegible]

STATE OF NEW HAMPSHIRE NOTARY PUBLIC OFFICIAL SEAL WENDY L. YOUNG NOTARY PUBLIC - NEW HAMPSHIRE My Comm Expires 3/25/20

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **Soucook Lane Wet Pond**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable

6.16 ac	A = Area draining to the practice	
4.10 ac	A_I = Impervious area draining to the practice	
0.67 decimal	I = percent impervious area draining to the practice, in decimal form	
0.65 unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
4.00 ac-in	WQV= 1" x Rv x A	
14,513 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,451 cf	10% x WQV (check calc for sediment forebay and micropool volume)	
7,256 cf	50% x WQV (check calc for extended detention volume)	
1,634 cf	V_{SED} = sediment forebay volume	← ≥ 10%WQV
16,338 cf	V_{PP} = permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no cf	Extended Detention?[1]	← ≤ 50% WQV
-	V_{ED} = Volume of Extended detention (if "yes is given in box above)	
416.69	E_{ED} = elevation of WQV if "yes" is given in box above[2]	
- cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
0.30 cfs	Q_{EDmax} = discharge at the E_{ED} (attach stage-discharge table)	← <$2Q_{avg}$
- hours	T_{ED} = drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	← ≥ 24-hrs
3.00 :1	Pond side slopes	← ≥3:1
415.00 ft	Elevation of seasonal high water table	
415.00 ft	Elevation of lowest pond outlet	
410.00 ft	Max floor = maximum elevation of pond bottom (ft)	
407.00 ft	Minimum floor (to maintain depth at less than 8')	← ≤ 8 ft
410.00 ft	Elevation of pond floor[3]	← ≤ Max floor and > Min floor
184.00 ft	Length of the flow path between the inlet and outlet at mid-depth	
51.00 ft	Average Width ([average of the top width + average bottom width]/2)	
3.61 :1	Length to Average Width ratio	← ≥ 3:1
Yes Yes/No	The perimeter should be curvilinear.	
Yes Yes/No	The inlet and outlet should be located as far apart as possible.	
No Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:	BMP has an outlet control structure	
Trash racks	What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?	
418.41 ft	Peak elevation of the 50-year storm event	
419.00 ft	Berm elevation of the pond	
YES	50 peak elevation ≤ the berm elevation?	← yes

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.
2. This is the elevation of WQV if the hydrologic analysis is set up to include the permanent pool storage in the node description.
3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

Analysis performed assumed saturated conditions. EED calculated as the elevation corresponding to the Vol below lowest invert+the WQV, the elevation corresponding to 30,852CF.

STORMWATER POND DESIGN CRITERIA (Env-Wq 1508.03)

Type/Node Name: **Wet Extended Detention Pond - VFW**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable

60.38 ac	A = Area draining to the practice	
4.17 ac	A_I = Impervious area draining to the practice	
0.07 decimal	I = percent impervious area draining to the practice, in decimal form	
0.11 unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
6.77 ac-in	WQV= 1" x Rv x A	
24,568 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
2,457 cf	10% x WQV (check calc for sediment forebay and micropool volume)	
12,284 cf	50% x WQV (check calc for extended detention volume)	
2,993 cf	V_{SED} = sediment forebay volume	← ≥ 10%WQV
cf	V_{PP} = permanent pool volume (volume below the lowest invert of the outlet structure)	
24,568 cf	V_{ED} = WQV - V_{PP} = extended detention volume	← ≤ X%[1] WQV
438.23	E_{ED} = elevation of V_{ED} (attach stage-storage table)	
0.57 cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
0.49 cfs	Q_{EDmax} = discharge at the E_{ED} (attach stage-discharge table)	← <$2Q_{avg}$
27.85 hours	T_{ED} = drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	← ≥ 24-hrs
3.00 :1	Pond side slopes	← ≥3:1
3.00 ft	Average permanent pool depth	← 3 - 6 ft
3.00 ft	Maximum depth of permanent pool	← ≤ 8 ft
240.00 ft	Length of the flow path between the inlet and outlet at mid-depth	
50.00 ft	Average Width ([average of the top width + average bottom width]/2)	
4.80 :1	Length to Average Width ratio	← ≥ 3:1
YES Yes/No	The perimeter should be curvilinear.	
YES Yes/No	The inlet and outlet should be located as far apart as possible.	
YES Yes/No	Is there a manually-controlled drain provided to dewater the pond over a 24hr period?	
If no state why:		
	What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of ≤6")?	
444.75 ft	Peak elevation of the 50-year storm event	
446.00 ft	Berm elevation of the pond	
YES	50 peak elevation ≤ the berm elevation?	← yes
Qualified professional that developed the planting plan:		
Name, Profession:		

1. "X" varies depending on type of stormwater pond design. See NH Stormwater Manual, Vol.2, Ch.4-3, Section 1, for the design permanent pool volumes and extended detention volumes.

Designer's Notes:

EED is the elevation associated with the volume of the permanent pool + the WQV (18,097 cf + 24.568 cf) = 42,665 cf

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Kerry Ryan, NHDOT
7 Hazen Drive
Concord, NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 8/29/2019 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB19-2789 Town: Loudon, Canterbury Location: The project begins just south of Shaker Road at the State Maintenance Shed in Loudon and continues north for approximately 3.5 miles.

Description: The project proposes to widen NH 106 to improve highway safety and mobility. The widened highway will provide two 12' wide travel lanes, two 12' wide shoulders, and a 12' wide center two way left turn lane. This project was originally reviewed as NHB17-1748 on 6/7/17.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Coordination with NHB and NH Fish & Game is ongoing. Please contact the agencies if the proposed project has changed.

Plant species	State[1]	Federal	Notes
Sensitive species	T	--	Please contact NH Natural Heritage (271-2834) if project impacts could occur in the area shown on the map.
small whorled pogonia (*Isotria medeoloides*)	T	T	Primary threat is habitat destruction for residential or commercial development or forestry; other threats such as herbivory, recreational use of habitat, and inadvertent damage from researcher activities have also been identified. At the present time "natural" factors such as slug damage, mammal grazing, or forest succession do not appear to be significant threats to the larger populations. US Fish & Wildlife Service (see below).

Vertebrate species	State[1]	Federal	Notes
American Eel (*Anguilla rostrata*)	SC	--	Contact the NH Fish & Game Dept (see below).
Bridle Shiner (*Notropis bifrenatus*)	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see below).

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "–" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

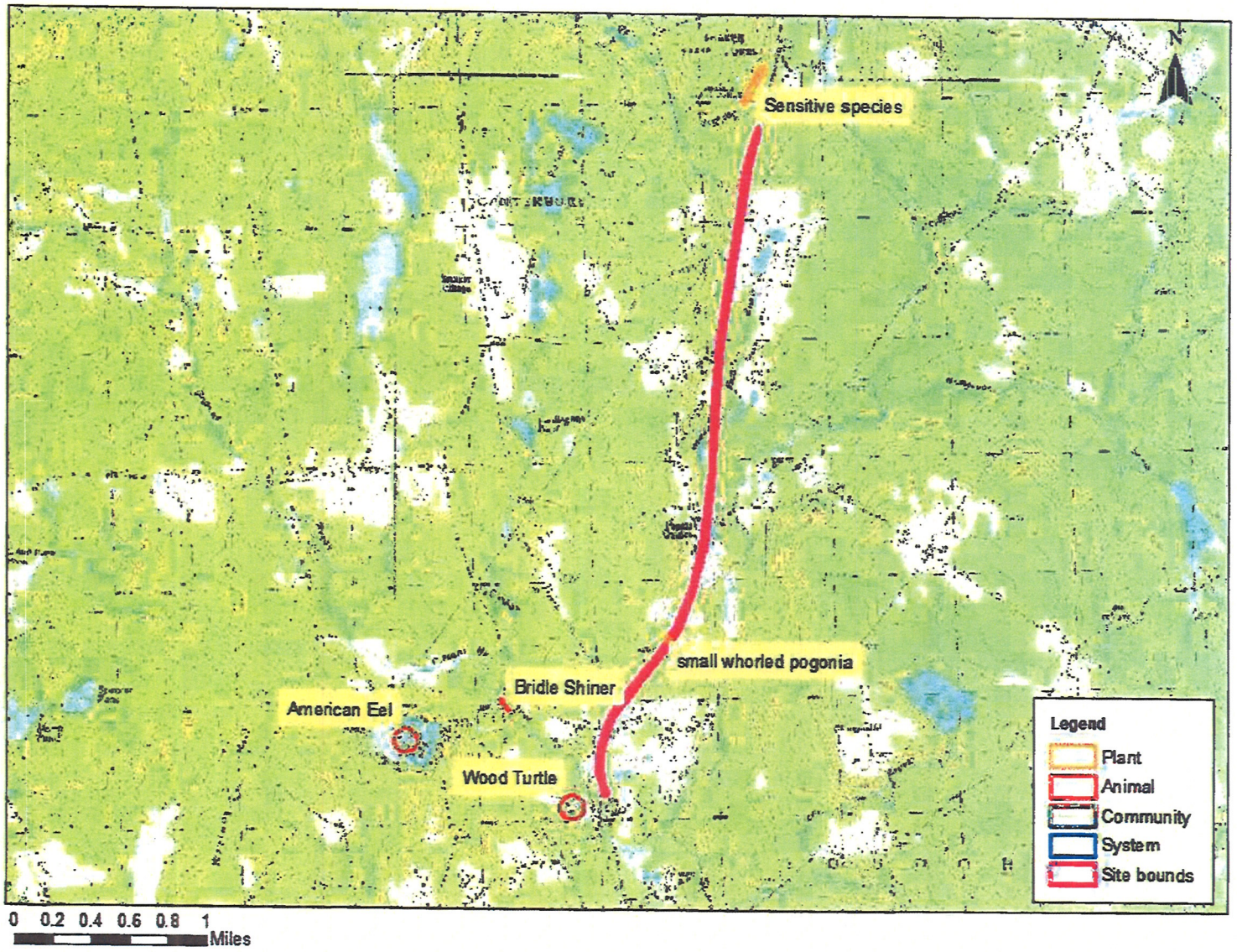
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB19-2789



New Hampshire Natural Heritage Bureau - Plant Record

small whorled pogonia (*Isotria medeoloides*)

Legal Status		Conservation Status	
Federal:	Listed Threatened	Global:	Imperiled due to rarity or vulnerability
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2011: 1 plant observed with 2 capsules.
General Area: 2011: Power line right-of-way that had recently been disturbed - felled trees were lying in power line.
General Comments:
Management Comments:

Location

Survey Site Name: Pearls Corner
Managed By:

County: Merrimack
Town(s): Loudon
Size: .4 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2011: On the west side of Route 106, about 0.6 miles north of the intersection of Route 106 and Shaker Road. The plant was found in a power line swath, approximately 100 feet west of the roadway. The telephone pole on the west side of 106 that leads to the plant location is labelled 63E.

Dates documented

First reported: 2011-09-13 Last reported: 2011-09-13

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)

Legal Status	Conservation Status
Federal: Not listed	Global: Apparently secure but with cause for concern
State: Special Concern	State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2008: Area 13330 Not enumerated.
General Area:
General Comments:
Management Comments:

Location

Survey Site Name: Soucook River
Managed By:

County: Merrimack
Town(s): Loudon
Size: 7.7 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2008: Clough Pond

Dates documented

First reported: 2008-10-01 Last reported: 2008-10-01

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

Bridle Shiner (*Notropis bifrenatus*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Rare or uncommon
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2009: Area 12427: Occupied habitat. No details.2005: Area 12427: 80 observed, age and sex unknown. 2000: Area 849: 1 observed, age and sex unknown.

General Area: 2009: Area 12427: Occupied habitat throughout impounded reach.2005: Area 12427: Freshwater stream or river. 2000: Area 849: Freshwater stream or river.

General Comments: 2009: Area 12427: Most of Soucook mainstem surveyed. Far less suitable habitat than previously thought. Only two confirmed occupied reaches.2000: Area 568: One bridled shiner sampled by electrofishing by DES at index site 150 meters long.

Management Comments:

Location

Survey Site Name: Shaker Brook
Managed By:

County: Merrimack
Town(s): Loudon
Size: 18.2 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2005: Area 12427: Soucook River bridge crossing near the intersection of Rte 129 and 106. 2000: Area 849: Shaker Brook at DES Station 00M-7.

Dates documented

First reported: 2000-07-11 Last reported: 2009

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

Christine J. Perron

From: vonOettingen, Susi <susi_vonoettingen@fws.gov>
Sent: Friday, February 24, 2017 1:36 PM
To: Christine J. Perron
Subject: Fwd: Loudon-Canterbury 29613 NLEB

I thought this was put to rest? NHDOT also asked. No, I don't think further surveys are warranted.

****
Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-223-2541 ext. 6418

www.fws.gov/newengland

---------- Forwarded message ----------
From: **vonOettingen, Susi** <susi_vonoettingen@fws.gov>
Date: Tue, Feb 7, 2017 at 10:03 AM
Subject: Re: Loudon-Canterbury 29613 NLEB
To: "Crickard, Ronald" <Ronald.Crickard@dot.nh.gov>
Cc: "Martin, Rebecca" <Rebecca.Martin@dot.nh.gov>, "Christine Perron (CPerron@mjinc.com)" <CPerron@mjinc.com>

Thanks Ron.

Is this the project that Rebecca will check in June for small whorled pogonia? I spoke with a few NH experts and we all feel that one plant in the transmission line was a stray. Most likely no more will be found.

Susi

****
Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-223-2541 ext. 6418

www.fws.gov/newengland

Crickard, Ronald

From: Henderson, Carol
Sent: Tuesday, January 28, 2020 10:56 AM
To: Crickard, Ronald; Tuttle, Kim
Subject: RE: Loudon-Canterbury 29613A

Hi Ron:

I have revisited this project with Kim Tuttle regarding the NHB review and project details and the Department's position remains unchanged in accordance with the conclusion noted in the December NHR meeting minutes and the separate email by the project consultant. Thank you for your inquiry. Carol Henderson, NHFGD, Environmental Review Coordinator

---

From: Crickard, Ronald <Ronald.Crickard@dot.nh.gov>
Sent: Tuesday, January 28, 2020 9:36 AM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>; Henderson, Carol <Carol.Henderson@wildlife.nh.gov>
Subject: Loudon-Canterbury 29613A

Hi Kim and Carol, The Department has recently submitted our NHDES Wetlands permit application for the Loudon-Canterbury 29613A project. You may recall that this is the second phase of the NH Route 106 Loudon-Canterbury widening project, the first phase was completed this past fall. During the review of the recently submitted wetlands application, NHDES has requested that we provide correspondence from NH Fish & Game about the coordination regarding the NHB report dated August 29, 2019, in the report, three rare species, including American eel (Anguilla rostrata), bridle shiner (Notropis bifrenatus), and wood turtle (Glyptemys insculpta), were noted as being located in the vicinity of the project.

The Wetlands Bureau's request specifically notes contacting Kim, which is what the NHB report notes. For this project our consultant had coordinated with Carol Henderson during the Natural Resource Agency (NRA) monthly meeting and in a separate email (all attached) regarding these species. No concerns were expressed at the time as noted in the attached correspondence:

"There are records of state listed aquatic wildlife species in the area. Impacts to these species are not anticipated since existing conditions at stream crossings will be improved upon. C. Henderson concurred."

I'm emailing you today to close the loop on this issue in order to respond to the NHDES Wetlands request. Could you please verify the conclusion noted by Carol in the attached December NRA meeting minutes?

Thank you
Ron

Ronald Crickard
Chief, Project Management
NH Department of Transportation
Bureau of Environment
7 Hazen Drive, Concord, NH 03302

Ph: (603) 271-7966
Fax: (603) 271-7199
Ronald.Crickard@dot.nh.gov

<< File: Correspondence with NH F&G .pdf >> << File: December202017Minutes-FINAL.pdf >> << File: NHB 2019.pdf >>
:

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: December 20, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Mark Hemmerlein
Victoria Chase
Rebecca Martin
Jason Tremblay
Kirk Mudgett
Keith Cota
Marc Laurin
Chris Carucci
Jennifer Reczek
Jon Hebert
Wendy Johnson
Jon Evans

ACOE
Mike Hicks

EPA
Mark Kern

Federal Highway
Jamie Sikora

NHDES
Gino Infascelli
Lori Sommer

NHF&G
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
John Byatt
Jaime French
Henry Kunhardt
Christine Perron
Jed Merrow
Steve Hoffmann
Ben Martin
Kevin Thatcher

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

NOTES ON CONFERENCE:

Finalization of the October 18th and November 15th Natural Resource Agency Meeting Minutes.
Matt Urban ask the group if there were any other comments or edits for the October 18th and November 15th 2017 meeting minutes. We had received only a few comments for each. No one objected to finalizing both sets of minutes. The minutes were finalized and posted after the meeting.

Ossipee, #14749 (X-A000(490))
The Ossipee 14749 project proposes to replace three bridges and rehabilitate 3.4 miles of NH Route 16/25. The project is not anticipated to reach the 10,000 square feet of wetland impact threshold for mitigation, but does include stream and bank impacts to the Lovell and Bearcamp Rivers. The project will advertise on July 10, 2018. Construction will be completed in June of 2021.

The bridges over the Bearcamp River and Bearcamp flood relief area will be replaced on the same alignment using slide-in bridge construction, which involves building the new bridge next to the existing bridge, closing the road for a one weekend per bridge, and sliding the new bridge into place. The Lovell River Bridge replacement will be a standard bridge replacement with a temporary detour bridge constructed, the existing bridge demolished and replaced, and then the detour removed. There will be some road profile modifications at the bridges and in some sections of road rehabilitation of up to 6 inches. NH Route 16 will be widened at the intersections with Deer Cove Road and Newman Drew Road for a turn lane. There will be 3 culverts replaced.

Kirk Mudgett described the impacts of the project to the floodplain and showed areas of proposed flood plain fill and mitigation on project plans. He explained that the areas of fill and areas of fill removal will balance out to one for one. Mike Hicks agreed that the impacts and credits appear to balance and the project can move forward relative to flood plain impacts. Mike Hicks inquired about historical issues and the Northern Long Eared Bat. Rebecca Martin explained that the bridges are eligible and the project will have an adverse effect. Mitigation has been agreed upon for the bridge impacts. Rebecca Martin explained that due to active season tree clearing the project is anticipated to have an adverse impact on the Northern Long Eared Bat. The project is in accordance with the Range-wide Northern Long Eared Bat Programmatic Agreement between FHWA, FRA, FTA and USFWS and necessary avoidance and mitigation measures will be incorporated into the project to ensure that it meets the conditions of the Programmatic Agreement.

Matt Urban explained that a meeting was held (between NH DOT, Lori Sommer (NH DES) and Jamie Sikora (FHWA)) that day prior to the Natural Resources meeting to discuss mitigation for the stream and bank impacts. NH DOT has evaluated several different options for wetland mitigation. For this project, an ARM fund payment has been determined to be most prudent. Matt Urban led the group through a discussion of the areas where the project proposes impacts to wetlands, streams, and banks. Matt Urban explained that the intent is to mitigate for areas of new permanent bank impacts where stone will be placed where stone is not currently. Areas where there is already rip rap, mitigation would only be calculated for extensions. Lori Sommer agreed to this approach.

Matt Urban commented that based on this method and a reduction for the bridge piers, there would be around 183 linear feet of channel and bank impacts that would need to be mitigated. This would be an ARM fund payment of around $45,000. The wetland permit application is anticipated to be submitted in February of 2018.

Mark Kern raised the issue of temporary impacts to forested wetlands and the Army Corps New England District Compensatory Mitigation Guidance. Mark Kern indicated that the Guidance suggests that mitigation of as much as 20% of temporary forested wetland impacts may be appropriate. The Bureau of Environment staff was not familiar with this guidance, as it has not been raised on other projects. Matt

Urban explained that the Department does not typically mitigate for temporary impacts. Lori Sommer commented that table 2 of the 2016 Corps guidance has been applied to utility projects, not DOT projects. Matt Urban commented that there are about 5,000 sq. ft. of permanent impacts and 87,000 sq. ft. of temporary impacts allowing the Contractor to determine the best course of action for constructing and sliding in the bridges. These impacts are shown to the full extent of the Temporary Construction Easement area to allow the contractor to possibly use any of the Temporary Construction Easement as an area to construct and then slide the constructed bridges into place. It is possible that the Contractor may choose to not use that location and construct the bridge and do the slide from one of the other quadrants around the bridge in which case the impacts would be reduced. The Department seeks not to dictate the Contractor's means and methods to complete this work. Therefore, the intention is to apply for a permit for the full extent of possible area the Contractor may require to complete the work. Lori Sommer suggested that it might be possible to mitigate for temporary forested wetland impacts after the Contractor has selected their method. Mike Hicks commented that this does not come up often and he will engage Ruth Ladd in the mitigation conversation.

The group discussed the temporary forested wetland impacts including impact area "N" (equals 21,191 square feet of temporary impact), area "W" (about 6,161 square feet of temporary impact), and area "X" (about 1,965 square feet of temporary impact). Cumulatively, this means the project is showing 29,317 square feet of temporary impact to forested wetlands. Mark Kern commented that the 20% is a guideline, Army Corps could determine that a lower percentage is appropriate.

The group also discussed that NHDES rules clearly indicate: 'Env-Wt 302.03(d) Mitigation shall not be required for impacts that are not intended to remain after the project is completed, provided the areas are restored in accordance with the provisions shown in the approved project plans.' The Department's plans would consist of clearing trees as necessary to facilitate the proposed constructions and slide-in of the constructed bridge. The stumps would be left in place and the once forested area would be left alone to naturally return to forest. Matt Urban commented that currently the Env-Wt 302.03 rule and the Army Corps guidance seem to contradict each other. Lori Sommer commented that the guidelines could apply because the Department will be seeking both a State and a Federal permit.

Gino Infascelli inquired if the project needs new rip rap where the abutments are being moved back, where it is not currently rip rapped and about the direct discharge shown to the Lovell River. Kirk Mudgett explained that the discharge will be in place for 1 to 1.5 years and is for the temporary diversion. Gino Infascelli requested that note be added to the plans. Gino Infascelli inquired about water quality treatment and Kirk Mudgett explained that under the preliminary design there was treatment needed due to added impervious surface, but that with the removal of a raised median and island and merge ramp at the intersection with NH Route 16 B, the project now reduces impervious area and will not need to treat stormwater. Jason Tremblay explained that the placement of rip rap is due to scour in the area, the piers need 20 feet or riprap around them. Carol Henderson inquired if the proposed rip rap would inhibit wildlife movement. Jason Tremblay said no and explained that there will be room for wildlife movement under the bridges.

This project has been previously discussed at the 1/16/2013 and 8/17/2016 Monthly Natural Resource Agency Coordination Meetings.

Francestown, #15765

Jaime French presented an overview of the bridge replacement on South New Boston Road over the South Branch of the Piscataquog River. The project is part of the NHDOT Bridge Program; construction is scheduled for fiscal year 2020.

The existing bridge is a 43-foot single span with steel girders, concrete deck, and stone/concrete abutments. The superstructure and substructure are in poor condition, and the bridge is structurally deficient. The girders are exhibiting section loss of the bottom flange with several holes in the girder webs. There is some cracking of the abutments and undermining of the northwest corner. In addition, there is a scour hole under the bridge. A hydraulic analysis shows the 50-year flood event has about 1-foot of freeboard, but the 100-year event submerges the girder about 10"; the eastern roadway approach is also overtopped.

The bankfull width was determined to be 66-feet. The 1.2 x BFW +2' criteria results in an 85-foot span, measured bearing to bearing. The low chord of the bridge was set to provide 1-foot of freeboard for the Q50 flood event. It is expected that the existing scour hole will fill in once the waterway opening area is increased; this was taken into account when setting the low chord elevation. This will require a raise in the profile of approximately 1-foot.

In an effort to reduce the right-of-way impacts an 85-foot span without raising the profile was looked at. This option will not meet the hydraulic requirements, nor accommodate the 100-year event and was disregarded as right-of-way impacts are not eliminated.

At the request of an abutter a shorter 60' span was also looked at. This span does not meet the 1.2xBFW requirement, and would raise the roadway more to meet the hydraulic requirements. The option was the most costly due to the deeper foundations and was eliminated.

We are recommending the raised 85' span option with integral abutments. This option meets both the hydraulic criteria and the NHDES stream crossing rules. There will be approximately 910 square feet of permanent wetland impacts; however, we will be creating approximately 960 square feet of new wetlands by moving the abutments back out of the stream.

We have completed the NHB Check and found three species of turtles in the area, Blanding's, Spotted, and Wood, as well as the Northern Black Racer snake. The turtles have been present on the NHB check on our previous Francestown projects. To remedy this, we included in the contract document notes that there is a species that is endangered, threatened, or of special concern at the site and required a protocol to be in place; which includes stopping of work and notifying Fish and Game. We would have the same notes and requirements in this contract. We will be coordinating with Fish and Game for these requirements.

Coordination meetings will be set up with the local conservation commission and the Local River Advisory group.

Lori Sommer asked if there will be impacts to the conservation easement on the north side. Jaime noted that there will be minor impacts for the slopes and for clearing.

Matt Urban asked if there will be any increase in the impervious area. Jaime said the proposed roadway width is 22-feet which will match the existing condition so there will not be an increase in the impervious area.

Mike Hicks asked if increasing the span will affect the downstream structure. Jaime noted that no changes will be seen at the next structure.

Lori Sommer asked if any Brook Floaters or mussels are in the area. Jaime said there is no indication of mussels. Lori also noted that if an easement is required on the conservation easement land coordination with the Charitable Trusts Unit will be required.

Carol Henderson noted that snake friendly erosion control measure need to be used, i.e. coco matting in place of plastic.

Mike Hicks indicated that this is an essential fish habitat. He noted that the Corp is the lead agency so they would perform the Essential Fish Habitat study, but if we prepared this study it will help get the approval faster. Mike also noted that we would have to comply with the Northern Long Eared Bat requirements, and that another bat would soon be on the list and additional requirements may be needed. This will apply to tree cutting of 3" diameter or greater trees. We will also need to complete a US Fish and Wildlife search for species in the area.

Mark Kern noted that the committee definitely supported the recommended option and the effort to use a compliant replacement structure.

Gino Infascelli said if the Conservation Commission and the PRLAC groups are in favor of or take no issue with the project the DOT should request they submit a letter with the wetland permit application as it helps avoid delays in the review process.

This project has not been previously discussed at the Monthly Natural Resource Agency Coordination Meeting.

Newington-Dover, #11238S

Marc Laurin updated the agencies on the FHWA requirements to complete a Limited Scope Supplemental Environmental Impact Study (SEIS) (including an updated Section 106 consultation and Section 4(f) evaluation) for the re-evaluation of alternatives for the disposition of the General Sullivan Bridge (GSB), as concerns have arisen with the proposed rehabilitation detailed in the 2007 EIS. A *Coordination Plan for Agency and Public Involvement* was developed and is posted online at Newington-Dover.com and accessed through the General Sullivan Bridge button and is filed under the Documents link. A formal letter will be sent to the agencies shortly that will ask for input on the Coordination Plan with an invitation to become a participating or cooperating agency. The Coordination Plan addresses how the Department expects to proceed with the development and schedule of the SEIS, including the process to solicit and consider input from agencies and the public.

Keith Cota further discussed the project commitment made in the 2007 EIS to maintain bicycle and pedestrian connectivity across the Little Bay by using the GSB. The rehabilitation of the GSB was scheduled for work after the completion of the widening of the Turnpike (including the expansion of the Little Bay bridges (LBB)) to accommodate temporary pedestrian and bicycle access on the wider LBB during this rehabilitation. Since then, inspections of the GSB, and its continued deterioration, have brought into question whether it is feasible to rehabilitate the bridge. The SEIS will review alternatives that will evaluate the GSB and bicycle-pedestrian connectivity options that were not considered in the 2007 EIS. Preliminary alternatives that will be evaluated include:

- Rehabilitation effort of GSB critical elements, for an estimated life-span of 40 years;
- A greater degree of rehabilitation, including gusset plates replacements, for an estimated life-span of 70 years;
- Partial rehabilitation of only the middle arch with replacement of the approach span;
- Replacement of all of the superstructure and building a new truss with a narrower width on the existing GSB foundations, and;
- Total replacement with construction of a new bridge, which could be stand-alone or connected to the LBB.

There may be other alternatives that will be evaluated. Some alternative may have greater environmental impacts that will need to be reviewed by the agencies. The project is on an aggressive schedule with anticipated fall 2018 completion of the SEIS.

Mike Hicks stated that he will check to see if there will be a Section 408 requirement. Carol Henderson inquired about the coordination with NHDHR. K. Cota replied that coordination is ongoing with NHDHR and there is strong interest in the GSB from them, other historical groups, the general public and politicians, especially on the estimated cost ($30 M or more) to maintain pedestrian/bicycle access. Mark Kern wanted confirmation that the reason Natural Agencies will be asked to participate, is that this is still part of the old EIS in which agencies were previously involved. K. Cota replied that was correct and it is a means of letting the agencies know the status of the SEIS. Gino Infascelli inquired as to the past discussions of maintaining the GSB for emergency access. K. Cota replied that these will be a factor of the loading design evaluation, though access will only be from the Newington side. The loading will need to accommodate inspection vehicles also. Though he stated that in actually AASHTO loading for pedestrian/bicycle access may be greater than for vehicles. Matt Urban stated that the US Coast Guard will need to be kept in the loop. A Public Informational meeting will be scheduled by Keith Cota to be held at the end of January in Dover that will inform the general public on the SEIS process and solicit for Section 106 consultant party interest.

This project has been previously discussed at the 4/16/2003, 7/16/2003, 4/21/2004, 1/19/2005, 4/20/2005, 7/20/2005, 8/17/2005, 11/2/2005, 12/14/2005, 2/21/2006, 3/21/2007, 10/15/2008, 8/19/2009, 8/17/2011, 3/21/2012, 3/19/2014, 6/18/2014, 8/20/2017 Monthly Natural Resource Agency Coordination Meetings.

Loudon-Canterbury, #29613 (X-A004(201))

Christine Perron provided an update on the project, which will involve widening approximately 3.5 miles of NH Route 106 to accommodate a 12-foot center two-way left-turn lane. The project was last reviewed at the January 2017 Natural Resource Agency Coordination Meeting, at which time preliminary wetland impacts were reviewed. A Public Hearing was held on October 23, 2017. As discussed at previous meetings, the project will be divided into two phases for final design and construction. One NEPA document was completed for both phases. Phase I of the project is a 0.9-mile section located just south of the NH Motor Speedway. Phase II consists of one segment to the south and two segments to the north of Phase I.

In January, it was agreed that separate permit applications could be submitted for each phase, with the understanding that mitigation would be provided for the overall project. Final design for Phase I of the project is now underway and wetland impacts are nearly finalized. The purpose of today's discussion is to review Phase I impacts and the need for mitigation prior to submitting the permit application for Phase I.

The existing roadway consists of two 12' shoulders and two 12' travel lanes for a pavement width of 48'. The project proposes to widen the roadway to accommodate an additional 12' lane to serve as a two-way left-turn lane. The travel lanes and shoulders would remain 12'. Overall widening would be approximately 12', resulting in a pavement width of 60', with 6' of widening on each side of the road in most locations. The roadway typical will be wider along one section of NH Route 106 within the limits of Phase I between Clough Hill Road and the south entrance of the speedway, a distance of approximately 1,600 linear feet (LF). This area experiences heavy pedestrian use during race events. In order to address safety concerns associated with large numbers of pedestrians and vehicles on the road at the same time, there will be an additional 6' offset to guardrail, resulting in a grass panel between the paved shoulder and guardrail. The only change in the project since it was discussed at the January meeting is the addition of a 2,000' segment north of the speedway's north entrance where a 6' offset to guardrail will be provided on the east side of

NH 106 to improve pedestrian safety during events at the speedway. The preliminary Phase 2 impacts below include this additional work.
Impacts along the overall project are as follows:

Phase I:
Temporary – 16, 092 sq. ft.
Permanent – 9,049 sq. ft.

Phase II (Preliminary)
Temporary – 10,411 sq. ft.
Permanent – 35,265 sq. ft.

Cumulative Totals (Preliminary)
Temporary – 26,503 sq. ft.
Permanent – 44,314 sq. ft.

Impacts for Phase I, which are nearly final, were provided in more detail:

	Permanent (sq ft)	Permanent (Linear Ft)	Temporary (sq ft)	Temporary (Linear Ft)
Wetland	3,803		6,121	
Channel	4,455	555	8,713	622
Bank	1,737	204	1,258	102
Totals:	9,994	759	16,092	724

Phase I impacts occur in five general locations along the one-mile segment. C. Perron and Chris Carucci described the proposed work and resulting impacts for each location.

Wet ditch (Sta 5439+25 to Sta 5441+25 Lt): The entire ditch will be impacted by the widened roadway slope, resulting in 812 sq ft of impact. The ditch line will be recreated at the new toe of slope.

Lori Sommer commented that impacts to this ditch do not require mitigation since a new ditch line will constructed.

Tier 1 Stream Crossing (Sta 5453+80) and 15" drainage pipe (Sta 5456+75): These pipes outlet into the same wetland system. The stream crossing is a 24" rcp carrying an intermittent stream. The pipe outlets onto a stone berm before the stream enters a large open water wetland with a scrub-shrub border. The culvert will be replaced with a 42" concrete pipe, the berm at the outlet will be removed, and a new stream channel will be ~~re~~constructed at a constant slope to the wetland. The new channel will be stone lined and intermixed with streambed material on the bottom. This work will result in 53 LF of permanent impact to the stream.

The 15" drainage pipe carries non-jurisdictional drainage. The pipe will be sliplined, which will result in a small ~~are~~ amount of temporary impact to the wetland at the outlet.

Gues Meadow Brook (5464+50 to 5467+50 Rt): This location is an area where Gues Meadow Brook is parallel to the roadway and is in the section that will have a wider typical with the 6' grass panel. The

widened roadway slope in this area has been steepened to 1.5:1 to minimize impacts to the stream. This slope is as steep as practical for a conventional earth slope. Stone will be used to stabilize the slope, and humus can be mixed with the stone to establish grass along the slope. The new slope will require removing existing trees and shrubs along the slope and stream bank, and some excavation along the OHW line will be required to match the new slope into the existing channel. The delineated TOB/OHW line does not match exactly match the existing topography, so impacts in plan view appear greater than in cross section view. The proposed toe of slope will match the existing edge of the channel bed. As shown on the plans, permanent impacts along the edge of the stream will be 201 LF. Permanent impact along the edge of the adjacent forested wetland will be 556 sq ft.

Gues Meadow Brook Crossing (Sta 5472+50): This is the first crossing of Gues Meadow Brook in the project area. The crossing consists of twin 72" concrete pipes. Since the pipes are in good condition and have adequate capacity, extension is proposed rather than replacement. Each end will be extended 12 feet and new headwalls will be constructed. This will accommodate the wider roadway and proposed 6-foot grass panel adjacent to the shoulder. The grass panel will allow for the removal of a pedestrian/snowmobile bridge that is located at the inlet. The pipes have no history of flooding and have the capacity to carry the Q50 storm. The pipes also carry the majority of the Q100 storm, with headwater a few inches higher than the edge of pavement. Some flow would divert through the roadside ditch to the south and drain through an existing 18" culvert about 600' south of the twin 72" pipe inlet. Since the project will result in raising the grade of the roadway by approximately 6 inches, the Q100 headwater would not reach the edge of pavement. The outlet of the pipes is slightly perched, and construction of a rock weir is proposed to raise the water level to alleviate the perch. Total permanent impacts to the stream at this location will be 49 LF, and there will be 963 sq ft of permanent impact to an adjacent forested wetland.

Carol Henderson asked if the local snowmobile club has been notified about the removal of the snowmobile bridge. Keith Cota responded that the club would be notified. He explained that the structure was put into place by an abutter who was trying to provide a crossing for pedestrians during race events, and the abutter then allowed the structure to be used by snowmobiles. The proposed grass panel will provide the space needed for pedestrians during race events as well as snowmobiles in the winter.

Gues Meadow Brook Crossing (5482+50 to 5484+60): This is the second crossing of Gues Meadow Brook in the project area and also consists of twin 72" concrete pipes. These pipes are also in good condition with no history of flooding. Proposed work involves constructing new headers in front of the existing headers and constructing new wingwalls. The larger headwalls will contain the new fill for the widened slopes, so the pipes do not need to be extended. The pipes have the capacity to carry both the Q50 and Q100 storms. The stream at the outlet of the crossing is influenced by beaver activity, resulting in a much wider channel where an adjacent wetland is now permanently flooded. Ordinary High Water (OHW) was delineated along the back edge of this flooded wetland, placing a section of OHW adjacent to the existing toe of the roadway slope. This means that the widened slopes will impact the edge of OHW, although the proposed slope has been steepened to 1.5:1 to minimize impacts. As currently delineated, the proposed work will result in 291 LF of permanent stream impact at the outlet and 43 LF of permanent stream impact at the inlet.
Matt Urban commented that the way linear impacts were calculated at the outlet (along the edge of OHW) is not consistent with the way linear stream impacts are typically calculated (along the thread of the channel), so this should be discussed further before finalizing the impact plans.

Gino Infascelli asked if the location of OHW should instead follow the primary stream channel. C. Perron said that she would discuss this further with him. L. Sommer commented that it would be helpful to see the impact areas in the field in the spring.

Amy Lamb asked if plantings could be provided along the toe of slopes adjacent to Gues Meadow Brook. K. Cota replied that plantings would be costly since they would require a lot of hand work for placing stone and putting in plantings. L. Sommer commented that adding plantings would be considered a self-mitigating element of the project and credit could be given toward overall mitigation.

C. Perron provided a summary of the preliminary in-lieu fee for mitigation. The preliminary fee for Phase I is based on the impact totals as presented and will change following resolution of items that require further discussion. The fee for Phase II is based only on preliminary impacts and will change once final design of that phase gets underway.

Phase 1 In-Lieu Fee:
Permanent wetland impacts 3,803 sq ft +/-
Permanent stream impacts 759 linear ft +/-
In-Lieu Fee = $200,573.34 +/-

Phase 2 In-Lieu Fee:
Permanent wetland impacts 27,700 sq ft +/-
Permanent stream impacts 70 linear ft +/-
In-Lieu Fee = $123,000 +/-

C. Carucci noted that the Department hopes to submit the Phase I permit application in the next few weeks in order to obtain the permit before the late-May advertising date. L. Sommer said that the final mitigation package could be further discussed after submittal of the application, after a spring field review is completed and self-mitigation elements are finalized. DES could issue an approval letter, that includes draft permit conditions, for the Department's use in advertising the project, and the final permit would be issued as soon as mitigation is agreed upon.

C. Perron reviewed additional resource considerations. The project overall will result in approximately 200,000 sq ft of additional impervious surface area (about 48,000 sf in Phase 1 and 150,000 sf in Phase 2). Three treatment areas are proposed for Phase 1 and three areas are available for Phase 2, resulting in the treatment of runoff from approximately 687,430 sq ft of impervious area. This equates to treatment for well over twice the area of proposed new pavement, which is the typical target.

C. Carucci elaborated on proposed treatment. He noted that it is not common to exceed the treatment target by so much. The topography within the project area just happened to be conducive to capturing a large amount of runoff. For Phase 1, a treatment pond is proposed on a DOT owned parcel between Mudgett Hill Road and NH 106, a grass swale is proposed adjacent to the Speedway south entrance, and a pond is proposed on the south side of Clough Hill Road adjacent to the Soucook River. At the two pond sites, the proposed design requires shifting flows from existing cross culverts to treatment areas. Where practical, diversion structures will be used to direct low flows to the treatment areas and allow high flows to continue outletting at existing locations. All outlets eventually flow to the same wetland systems and to the Soucook River.

The project will not impact floodplains. There are records of state listed aquatic wildlife species in the area. Impacts to these species are not anticipated since existing conditions at stream crossings will be improved upon. C. Henderson concurred.

Potential federally-listed species in the project area consist of the northern long-eared bat and small whorled pogonia. An acoustic survey was completed last summer and no northern long-eared bat calls were recorded. A formal survey was completed for small whorled pogonia in the location where it had

been identified in 2012. This species was not found at that location or in any other location reviewed during other field work. Habitat within clearing limits along the project was assessed and USFWS concurred that no further surveys were warranted.

Two NHFG properties will be impacted by slope work and the Department has been coordinating with Rich Cook. An existing 15" culvert outlets into the conservation land at Sta 5444+50. Discussion with NHFG indicated the easement language does not allow for extending the pipe, so it will be abandoned and the drainage will be shifted to the Mudgett Hill Road treatment area. The easement language does allow for slope impacts.

This project has been previously discussed at the 1/18/2017 and 8/17/2016 Monthly Natural Resource Agency Coordination Meetings.

Dummer, #16304A (X-A003(835))

Mark Hemmerlein opened the meeting by noting the last review was in Oct 2017. The Department had a public hearing and a few issues were raised by the public. The issues included a trail that runs along the river, the location of a few Osprey nests in the area, and their desire to maintain the view of the river from the roadway. The proposed design now impacts 6.85 acres of wetlands. At the last meeting there was a request for more information regarding the replacement of the 60" pipe that carries Robbins Brook under NH Route 16 within the project area with a larger more wildlife friendly bridge. Jennifer stated the estimate for the 12 foot span bridge was approximately $780K which included a natural bottom and wildlife shelf. Lori noted that cost estimates were previously requested for use during the site walk. Carol inquired about what other mitigation was considered. While in the field only the Robbins Brook crossing was investigated but in prior meetings about mitigation other alternatives were discussed. While in the field Gino Infascelli recommended that soil and vegetation from the wetland side could be used to re-vegetate the river shoreline. Mark described a proposed method of moving soil around the project while maintaining the mulch of the native root stock and existing seed stock in the soil to use for enhancing a water quality buffer and shoreline to the river. Lori and Gino both indicated that a construction sequence would be needed in the application to provide mitigation credit for the proposed river/vegetated buffer along the Androscoggin River. They also indicated it would only be 12% based on the proposed Total Suspended Solids removal. Mark indicated the project will also require a water quality certificate. Mark Kern noted the impact areas are to wooded wetlands and questioned how the cost of a bridge was thought to be mitigation. Gino indicated the replacement value for Robbins Brook culvert was questioned by the NHF&G field reviewers since there is an upstream constriction on NH Route 110A. Matt closed the meeting by indicating the mitigation would likely take the form of a $1.2M ARM fund payment and applications will be submitted in February 2018.

This project has been previously discussed at the 10/15/2014, 7/19/2017, and 10/18/2017 Monthly Natural Resource Agency Coordination Meetings.

Nashua-Merrimack-Bedford, #13761

The proposed project is anticipated to involve widening three segments of the Everett Turnpike, totaling approximately 8 miles, from two lanes to three in each direction. The purpose of this agenda item was to: present the preferred alternative of the Naticook Brook crossing; discuss preliminary wetland impacts with

a focus on the higher value, more significant resource areas (e.g. streams and vernal pools) found throughout the project corridor; and present proposed stormwater BMP and noise wall locations.

Mr. Merrow provided a brief overview of the project before beginning the wetland impacts discussion. Starting from the southern terminus of the project and continuing north, figures displaying the project area, delineated wetlands, slope lines, noise walls, stormwater BMP areas, and wetland and stream impacts were presented. In the southern segment, there are limited impacts to wetlands with the exception of Pennichuck Brook. The Pennichuck Brook area had been discussed in depth at previous Natural Resource Agency Coordination meetings and a preferred alternative has already received concurrence.

Three noise walls are proposed just south of Exit 11 and the southern end of the middle project segment. Mr. Merrow pointed out a large wetland and stream in the vicinity of the noise wall to the west, and noted that at this time impacts are expected to be avoided.

Continuing north along the project corridor, Mr. Merrow pointed out an area of wetland impacts located on the west side of the Turnpike near the Cinemagic movie theater in Merrimack. This wetland area is believed to be a vernal pool due to unknown ambystomid salamander egg masses that were documented during a spring 2017 vernal pool survey. Mr. Merrow stated that impacts can likely be avoided to the wetland at this location. However, another concern is the clearing of forested habitat south of the pool for the installation of a stormwater BMP.

Mark Kern asked for clarification on the species of salamander eggs that were found in this pool, and Mr. Merrow replied that it was most likely either blue-spotted, Jefferson or a hybrid of the two species.

Mr. Martin presented the alternative analysis for the Naticook Brook crossing. Naticook Brook is a Tier 3 perennial stream, with a 2,028-acre watershed. The structure currently consists of a 60” concrete culvert that is hydraulically undersized based on the hydraulic analysis that was completed. The existing culvert is also shared by a sewer pipe that was installed sometime in the early 1980s. The replacement of this culvert is further complicated by 45’ of overburden above the existing culvert and the alignment of the existing stream channel.

Mr. Martin presented three alternatives for the culvert replacement. Alternative 1 includes a supplemental 60” culvert that would be installed parallel to the existing culvert using directional boring methods. The existing 60” culvert would remain in place. This would meet the hydraulic requirements but would not address the NH Stream Crossing Guidelines. Alternative 2 consists of a 90” RCP culvert imbedded 2 feet to allow for a natural substrate bottom. This culvert would be skewed and the existing 60” culvert would be abandoned. This alternative could be installed using either trenchless directional boring (Alternative 2B) or an open cut (Alternative 2A). Alternative 3 is a three-sided bridge structure with a 20’ span and 5’ rise. The preferred alternative based on the cost, and constructability is Alternative 2B. There seemed to be general concurrence that this was the most reasonable alternative.

Mr. Merrow pointed out a downstream segment of Naticook Brook that would be filled and require realignment, noting that this portion of the stream had some scour and erosion issues. Mr. Urban asked if slopes in this area could be steepened to 1:1 or retaining wall used to avoid impacts. Mr. Martin explained that the current meander in the channel is currently at the existing toe-of-slope, and that impacts to the channel are unavoidable even if the slopes are steepened.

Mr. Merrow continued the discussion on wetland impacts, indicating that there are no impacts proposed at the Souhegan River. There is another large semi-permanent vernal pool wetland located north of the Souhegan River on the west side of the Turnpike. Wood frog egg masses were identified in this pool.

NHB identified a record of an individual Blanding's Turtle being found on the Turnpike in the vicinity. There are minimal impacts proposed with 2:1 slopes and guardrail. Mr. Kern asked about drainage and runoff at the location of the pool, and if it would be possible to direct drainage away from this pool to reduce the chloride loading from runoff.

Mr. Urban mentioned that bird's foot violet has been transplanted and is located in the vicinity of the BMP areas near the Souhegan River.

Mr. Merrow introduced the next wetland impact area located near the Baboosic Brook/Wire Road crossings. This area included a small intermittent and a possibly perennial stream with fringe wetlands. The intermittent stream flows east to west underneath the Turnpike, before flowing to the north, parallel to the Turnpike. This intermittent stream joins a small, possibly perennial stream that flows from west to east under the Turnpike before flowing into Baboosic Brook. The intermittent stream on the west side of the Turnpike would require realignment. Mr. Urban asked about the existing channel conditions and if these would be recreated in the constructed channel. Mr. Merrow indicated that a channel with natural substrate and meanders would likely be constructed.

Mr. Merrow also indicated that the final recommended alternative for the Baboosic Brook crossing is still under development, so the impacts associated with this location are not known at this time. These will likely be addressed at the next resource agency meeting. North of Exit 12 there are some fringe wetland impacts but measures have not been taken to avoid these impacts because the wetlands are moderate to low quality and the impacts are relatively minor.

Dumpling Brook is a small perennial stream with a 300-acre watershed. At this location, a pipe extension is proposed on the west side, and on the east side impacts may be avoided by steepening the slopes and installing guardrail. Mr. Sikora asked about the potential noise wall that is shown at this location and how it will tie in. This issue will be addressed as the noise wall design moves forward. Mr. Urban asked about the reasoning for the pipe extension on the west side. Mr. Martin explained that on the west side the pipe extension follows the existing channel, and no guard rail is proposed in the immediate vicinity. However, on the east side an extension is not feasible because the configuration of the channel and existing topography would require extensive earth work. Guardrail is proposed nearby and can be extended to the stream crossing.

Mr. Merrow mentioned that in the area of the I-293 interchange there are some fringe wetland impacts. The existing slopes are relatively steep and high and therefore avoiding these impacts would be difficult. There is an unnamed perennial stream in the northern section south of the I-293 interchange. A pipe extension on the upstream (west) side would be difficult due to the presence of bedrock and a 3-4 foot drop before entering the culvert. Mr. Urban noted that this is a very flashy stream, likely due to the amount of impervious surface in its watershed. The existing culvert is a 72" pipe that has had some recent work done. It meets the hydraulic requirements.

Mr. Merrow described the overall approach to stormwater management and Mr. Thatcher discussed specific stormwater BMP areas. There are three areas where no treatment was possible; these included the Souhegan River, Baboosic Brook, and Dumpling Brook. Mr. Thatcher discussed the typical BMP layout and design. Wet Extended Detention Basins with sediment forebays will be used.

Mr. Merrow indicated that the total area of wetland impacts is expected to be within the 2-3 acre range. If so the project will likely qualify for the Section 404 Programmatic General Permit.

Mr. Urban recommended collecting sufficient data on existing stream channel conditions including longitudinal profiles and cross sections, particularly for areas where realignment is proposed. (It was later determined the consultant collected bankfull widths and depths at stream crossings. Channel profiles and cross sections will be determined during final design.)

Ms. Lamb expressed her concern for rare plant species and stated that avoidance measures are preferable to relocation, and recommended that surveys occur as early on in the project as possible (this season). Ms. Lamb also expressed concerns about exemplary natural communities located in low points and if stormwater BMPs or untreated stormwater would impact these areas, and if alternative stormwater BMPs were possible. The project team will consider whether stormwater may affect exemplary natural communities, and if so, will look into design alternatives.

Mr. Hicks mentioned that floodplain impacts still needed to be addressed. The project team will be quantifying floodplain and floodway impacts.

This project has been previously discussed at the 10/19/2016, 11/16/2016, 2/15/2017, and 5/15/2017 Monthly Natural Resource Agency Coordination Meetings

Loudon-Canterbury 29613A
Wetlands Permit – Construction Sequence

February 20, 2020

Anticipated Project Start: June 2020
Anticipated Project Completion: Fall 2021

Phase 1A – Prior to July 2020 NH Motor Speedway NASCAR Race

NH 106: Sta. 5370+00 to Sta. 5442+00

1. Flag or fence clearing and grubbing limits along NH 106; clearly distinguish areas for clearing (no grubbing).
2. Install all necessary perimeter controls (turbidity barrier, silt fence, construction fence) including areas of disturbance, clearing and grubbing, etc., for all work areas prior to any clearing and/or earthwork activities.
3. Install storm drain inlet protection for all catch basins and drainage structures within and adjacent to the work area.
4. Cut trees within the designated clearing/clearing and grubbing areas and remove the trees. Remove all vegetation, including roots, within designated clearing and grubbing areas only.
5. Relocate utilities.
6. Extend existing drainage culverts and adjust existing catch basin grates.
7. Replace existing signal mast arms at the intersection of NH 106 and Shaker Road.
8. Remove sign structure located at Sta. 5372+20.

Phase 1B – After July 2020 NH Motor Speedway NASCAR Race / Prior to Winter Shutdown

NH 106: Sta. 5370+00 to Sta. 5442+00

1. Place portable concrete barrier (PCB) from Sta. 5380+00 to Sta. 5386+00.
2. Construct BMP pond 5381.
3. Construct new guardrail from Sta. 5379+75 to Sta. 5382+07.
4. Typical sequence for reclaim segments:
    a. Construct closed drainage and roadway widening.
        - Work on one side of the road at a time.
        - Place PCB along guardrail segments and remove existing guardrail.
        - Place wedge of crushed gravel along existing edge of pavement.
    b. Reclaim full width of roadway and fine grade (work to be done in segments up to 3,000' at a time)
    c. Pave 2.5" of binder course on mainline travel way 36' wide.
    d. Finish shoulder subgrade (2.5" of crushed gravel 12' wide each side).
5. After one or more reclaim segments are complete:
    a. Pave 2.5" of binder course on mainline full width 60' wide.
    b. Pave 2.5" of binder course on side roads and paved drives.
    c. Install new guardrail.

NH 106: Sta. 5370+00 to Sta. 5486+00

6. After paving two layers of 2.5" binder courses are complete:
    a. Pave 1.5" of wearing course on mainline full width 60' wide.
    b. Pave 1.5" of wearing course on side roads and paved drives.
    c. Match wearing course into existing pavement at project 29613 northern contract limit.
    d. Install permanent signing and pavement markings.

Phase 2A – Prior to July 2021 NH Motor Speedway NASCAR Race

NH 106: Sta. 5486+00 to Sta. 5562+50

1. Flag or fence clearing and grubbing limits along NH 106; clearly distinguish areas for clearing (no grubbing).
2. Install all necessary perimeter controls (turbidity barrier, silt fence, construction fence) including areas of disturbance, clearing and grubbing, etc., for all work areas prior to any clearing and/or earthwork activities.
3. Install storm drain inlet protection for all catch basins and drainage structures within and adjacent to the work area.
4. Cut trees within the designated clearing/clearing and grubbing areas and remove the trees. Remove all vegetation, including roots, within designated clearing and grubbing areas only.
5. Relocate utilities.
6. Extend existing drainage culverts and adjust existing catch basin grates.
7. Construct BMP pond 5488.

Phase 2B – After July 2021 NH Motor Speedway NASCAR Race / Prior to Winter Shutdown

NH 106: Sta. 5486+00 to Sta. 5562+50

1. Typical sequence for reclaim segments:
    a. Construct closed drainage and roadway widening.
        - Work on one side of the road at a time.
        - Place PCB along guardrail segments and remove existing guardrail.
        - Place wedge of crushed gravel along existing edge of pavement.
    b. Reclaim full width of roadway and fine grade (work to be done in segments up to 3,000' at a time).
    c. Pave 2.5" of binder course on mainline travel way 36' wide.
    d. Finish shoulder subgrade (2.5" of crushed gravel 12' wide each side).
2. After one or more reclaim segments are complete:
    a. Pave 2.5" of binder course on mainline full width 60' wide.
    b. Pave 2.5" of binder course on side roads and paved drives.
    c. Install new guardrail.

NH 106: Sta. 5370+00 to Sta. 5486+00

3. After paving two layers of 2.5" binder courses are complete:
    a. Pave 1.5" of wearing course on mainline full width 60' wide.
    b. Pave 1.5" of wearing course on side roads and paved drives.
    c. Match wearing course into existing pavement at project 29613 northern contract limit.
    d. Install permanent signing and pavement markings.

At the completion of the project and once stabilization has been met, remove all temporary perimeter erosion control measures.